PRACTICAL ACCOUNTING PROBLEMS

Theory Discussion and Solutions

P. J. ESQUERRÉ

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PRACTICAL ACCOUNTING PROBLEMS

THEORY, DISCUSSION, AND SOLUTIONS

By

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To my very good friend, Major F. M. Brown,
C.P.A. (Ohio), Attorney at Law (Ohio),

Who, years and years ago, gave me
my now undying faith in accountancy,

This volume is affectionately dedicated.

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FOREWORD TO THE STUDENT

I take the liberty of speaking to you in the first person, instead of impersonally as they do in books, because this method of presenting the subject matter appears to me more susceptible of conveying the message that I have to deliver. I believe that I can help you better if I can create, in this book, a class-room atmosphere, and bring about that complete and ideal understanding between pupil and teacher, which stands at the basis of successful pedagogy.

Students of accounting are prone to refer to "practical problems" as "the enemy"; this is due to several causes, not the least of which is their belief that the word "practical" means what it says. They believe that a problem is to be solved according to the dictates of practical experience acquired in the broad field of accountancy. If this were true, it is safe to say that every accountant would solve a problem in a different way, the measure of the difference being the extent and the diversity of his experience as opposed to that of another accountant. Naturally, the result of such a condition would be the birth of a grave doubt about the positiveness of the science of accounting.

A practical accounting problem is nothing more than a test of your ability to apply, to an accounting proposition, the principles of the theory of accounts. The example which is

given to you does not presuppose that a particular thing has happened which is contrary to the general rule of business, and has been met by you in your practice; it does not go out of its way to invent a purpose which is at variance with the average purpose of business enterprises, but with which you are supposed to be familiar as a practitioner; it does not create a type of business organization so odd as to require actual experience with highly developed specialties in order that the proposition may be understood. No, indeed; it merely rests its case on the broad basis of the general theory of accounts, and assumes, as a first proposition, that only theory will be called upon to help in arriving at the solution.

Theory, as you know perfectly well, is mere speculation around a fact known to be true in its abstract crudity, or assumed to be true or possible, but in any event accepted as true and adopted as a basis upon which to erect a superstructure of human thought. When the edifice is erected, if it appears weak and freakish, it is destroyed and the basis changed. If it appears harmonious, evenly balanced, and endowed with a power of resistance which will insure its existence (at least as long as the human thought which has created it has not reached a higher development), then we go back over the prime thoughts which have served as raw materials for the structure, and deduce from them principles, sub-principles, doctrines, rules, and precepts which, if applied by others, will permit them to rebuild precisely as we built originally.

Thus, theory accepts certain bases which, if they are to support edifices of a similar nature, must remain immutable. Therefore, if, through changes in business laws, conditions of organization, fiscal requirements, control by legally constituted governmental bodies, or otherwise, there is a radical alteration of the previously positive character of basic facts, the theoretical accounting structure must be altered to suit conditions, or it cannot survive.

Let me suppose that a commission is created to control public utilities, and establish for their services a price which will be fair to the consuming public, and at the same time give the owners of the utilities a fair return on their investment. You can readily appreciate that, under such conditions, the bases for the development of the theory of accounts to be kept by the public utilities will have to be the following facts:

> CAPITAL is whatever is permanently invested in the enterprise.
>
> COST OF SERVICES is whatever is consumed by the furnishing of the service.

These two trite facts appear to be commonplace truisms. And yet, the changes which they have brought about in the generally accepted principles of accounting theories have been considerable. For instance: A premium received on the sale of corporate stock may very well be accepted by the average business concern as a credit to surplus. But, when a common carrier receives such a benefit, it must be considered as a liability, expressive of the value of actual property received without cost and permanently invested in the enterprise.

On the other hand, a factory considers as cost, among other things, the wear and tear of its machinery. But in the event that a machine is accidentally destroyed, no factory accountant would think of making the operations of the period bear the cost of the undepreciated value of the capital lost. And yet, that is precisely what the common carrier must do.

What brings about such radical changes in theory? Equally radical changes in purpose.

I cannot enter, at this point, into an extensive discussion of the subject "purpose," since this is only a foreword to you; but you and I will have many occasions for heated discussions on this score, in the course of the three volumes of problems which I intend to present to you.

Since the application of the generally accepted theory of accounts is the basis for your work in the solving of problems, it follows that the first thing to be done is to find the theory embodied in the text. It may be that problems will be your enemies of today. But they are a noble foe, well worth fighting, and if fought in a manly way, destined to become your allies of tomorrow. They have one great quality which insures their early victories over your unorganized forces, and that is their ability to formulate a plan, and their knowledge of your deficiency in that respect. They apply rules of strategy in attacking you, fully aware that your system of defense is no system at all, but results from a nervousness similar to that of the recruit fighting his first night battle against a well-seasoned

veteran. You strike here, you strike there, and in the end you strike only the empty space, while the problem delivers all its deadly blows with absolute mastery of the situation.

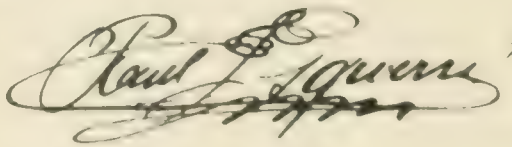
You must learn accounting strategy. The first thing to do, is to ascertain the enemy's plan of attack; discover the traps and the snares that it has set up for your downfall, and the particular enveloping movements which it intends to carry on, judging from the disposition of its forces. Then you must make your own plans, not in the spirit of a general convinced of an easy victory, but with all the care of a leader who, working against tremendous odds, will leave no detail untouched which might contribute, even in tne minutest degree, to the final victory.

It may be that, after a great many successes, you will acquire that certainty of your superiority which is symptomatic of folly. Undoubtedly you will reach such a stage. But there will be found, some day, in the big battlefield of accounting, a sunken road where your charging power will be engulfed; a field of soft earth where your artillery will sink; a Marne where your advance-guard, exhausted by a premature advance, and handicapped by the intoxication of your logic, will be turned back ignominiously.

Let us hope that some problem will be your Waterloo, or your Chateau-Thierry, or your Verdun. Then you will have acquired for your enemy, the problem, a respect which will be your salvation.

In solving the problems which will be included in the three volumes of this course, we will, if you please, consider every problem as a separate entity, likely to be different in every respect from a problem which we have seen previously, even if it bears on its face all the earmarks of relationship. We will, in every instance, try to ascertain the general theory of the problem, the particular principles of that theory which the problem involves, and the theory of the form in which the solution is to be presented. Then we will make our plan of attack.

As I wish to leave no stone unturned in my effort to be certain that you understand me thoroughly, let me begin this volume by presenting, as an introductory problem, a proposition the solution of which, while not requiring a wonderful knowledge of accounting, presupposes a good sense of logic and a rather developed power of planning. The problem is in reality far too complex for a start, but it will serve a purpose which, to me, is sacred. I want to convince you that the first thing to be acquired in the practice of accounts is the art of self-defense. This cannot be done otherwise than through the exercise of faculties which you possess (even though you seldom use them) i.e., common sense, logic, analytical power, synthetical power, coolness, and the desire to succeed.



INTRODUCTORY PROBLEM

APPLYING THE THEORY OF ACCOUNTS TO FORMULATE A METHOD OF ASCERTAINING UNKNOWN FACTORS TO BE USED IN THE REBUILDING OF MISSING ELEMENTS

INTRODUCTORY PROBLEM

APPLYING THE THEORY OF ACCOUNTS TO FORMULATE A METHOD OF ASCERTAINING UNKNOWN FACTORS TO BE USED IN THE REBUILDING OF MISSING ELEMENTS

(Adapted from the New York C.P.A. Examination of February, 1911.)

Text of the Problem

A corporation's inventory on January 2, 1909, was:

Raw Materials	$32,467.18
Goods in Process	4,212.22
Plant	18,673.18
Made-up Goods	19,753.47

It suffered a fire loss on May 1, 1909. The interim transactions affecting merchandising, manufacturing, and plant were as follows:

Purchases Raw Materials	$46,375.22
Productive Labor paid out	21,618.06
Manufacturing Expenses	5,167.20
Rent of Show Room and Offices	400.00
Selling Expenses	7,618.25
Advertising	360.22
General Expenses	2,561.12
Sales	95,714.66
Allowances to Customers	310.18
Returns by Customers	2,167.29
Plant Purchases	361.22

The figures ascertained for the years 1906, 1907, 1908, for the identical items, were as follows:

	1906	1907	1908
Purchases Raw Materials	$186,320.16	$104,360.22	$157,316.20
Productive Labor paid out	90,322.24	61,212.06	72,106.14
Manufacturing Expenses	20,163.12	16,208.17	20,216.23
Rent of Show Room and Offices	1,500.00	1,200.00	1,200.00
Advertising	1,000.00	750.00	1,000.00
Selling Expenses	28,672.18	16,314.12	22,312.18
General Expenses	10,750.16	9,746.22	11,116.20
Sales	386,924.12	217,306.01	321,672.18
Allowances to Customers	1,116.24	3,605.75	975.00
Returns by Customers	8,614.08	4,106.18	3,167.22
Plant Purchases	500.00	540.22	409.00

Inventories beginning of year:

	1906	1907	1908
Raw Materials.....	$ 39,223.16	$ 31,316.20	$33,416.20
Goods in Process.....	6,104.12	3,107.12	3,726.18
Made-up Goods.....	21,223.10	17,306.29	18,622.12
Plant.....	17,223.96	17,723.96	18,264.18

You are employed by the assurers; the assured claims his loss is 42½% of the prime cost of his goods at the time of the fire.

REQUIRED: Prepare statements showing the value of the assets destroyed.

Discussion of the Introductory Problem

True to our purpose, we are first going to draw our plan of attack.

The problem requires, as a general proposition, the finding of a sum equivalent to 42½% of a greater sum which contains the value of the prime cost of goods, in their raw state, or in process of manufacture, or finished and unsold, at May 1, 1909, and partially destroyed by fire as of that date. As it is always advisable to have a thorough understanding of your opponent, the first question to settle is the status of the term "prime cost." Production engineers and efficiency experts maintain that, in these days of highly developed machinery, the term can no longer mean material and direct labor only. Of course, they are quite right. If machinery is the important producer of goods, cost can be no cost at all unless it contains the overhead elements which are absolutely necessary if the machines are to operate at all. Still, the use of the term "prime" in conjunction with cost, can be defended upon the ground that it remains within the domain of the general theory of accounts, and expresses, in all but the highly developed industrial organisms, the cost elements which can be directly and positively associated with distinct units of manufacture, or with groups of such units.

Therefore, we have ascertained that what is asked of us (by a problem which does not concern itself with a model modern

plant, but has to do only with general theory of accounts) is to find the value of material and direct labor contained in the total value of the goods destroyed.

What do we need to know in order that we may produce the required result?

1. The cost components (materials, direct labor, and overhead) contained in the inventories of January 1, 1909; by inventories, we mean, of course, all the inventories, whether of raw materials, or of goods in process, or of finished goods.

2. The cost components of the manufacturing operations of the period.

3. The portion of cost components consumed by the sales of the period from January 1 to May 1, 1909.

4. The portion of cost components theoretically contained in the probable inventories on hand at the time of the fire.

All of the above information is lacking, with the exception of the amount of purchases of materials, labor, and overhead during the present period. How can it be obtained?

It does not require a special amount of technical knowledge of business to realize that, unless there have been material fluctuations in the value of the goods purchased or in the labor market, or again, radical changes in the policies of the factory, the cost of manufacturing goods remains about the same from period to period. In other words, if in 1908 the cost of an object was made up of 45% material, 20% labor, and 35% overhead, the cost of the same object in 1909 will be pretty nearly the same, all conditions being similar.

The problem naturally assumes that the general theory of business prevails, and asks that such an assumption be accepted. It does so emphatically, in fact, since it gives transactions of a similar nature for a period of three years, as well as for the period in which the fire occurred. The object of making the information which it supplies extend over a period of years, is to lead us positively towards the use of averages, on the general proposition that even if certain conditions are disturbed during a period, they will be righted during a series of periods, and reduced to a common denominator.

Hence, taking advantage of the information available for the period of three years preceding the fire:

1. Find the components of the cost of manufacture during the period of three years ended December 31, 1908, and the percentage of each component for three periods to the total cost of manufacture for the said period.

2. Using as a basis the percentage obtained by Schedule No. 1, ascertain the components of the cost of goods put in process and finished during the three-year period; add thereto the analyzed inventory of finished goods at the beginning of the period; deduct from the sum of each component the analyzed inventory of finished goods at the end of the period; and obtain, as a result, the components of the cost of the goods sold during the three-year period.

   Your ultimate object in working out the above being to ascertain the amount of each component of cost consumed by the sales, and to ascertain such percentages:

3. Using as a basis the percentages obtained by Schedules Nos. 1 and 2, analyze the original inventories at January 1, 1909; add the purchases of the period, applying theory of accounts to the extent of considering as purchases not only raw materials, but, as well, labor and overhead.

You have now obtained the value of each component of the total cost of the goods available for sale during the period in which the fire occurred. Applying to this result the final percentages of Schedule No. 2, you will obtain the value of the components consumed by the sales of the period, as well as the remainder of value subject to destruction by fire.

Having arrived at the desired result, you only need to add the value of the material and labor components, and to take 42½% of the sum, in order to obtain the value of the merchandise destroyed.

You see what I mean by "strategy of the problem"? The problem has intrenched itself behind a screen of obscurity, a species of camouflage which problems generally adopt. It has challenged you to a duel of wits, and it knows perfectly well that victory will be yours if you use your knowledge of theory of accounts, your intelligence, and your sense of logic. It expects a frontal attack which, if you deliver it, will fatally result in your discomfiture.

You must be cautious, work out your plan carefully, muster your available resources, and by all means obtain all the information necessary, through the full use of scouting expeditions. The ever-ready scout is, for you as well as for all accountants, that sense of analysis which most men possess to a

greater or smaller extent but which so few of us use to its limit.

As to the form in which the solution of the problem is to be presented, it has no particular theory. The tabloid form is indicated, as you will see from the following schedules.

Solution of Introductory Problem

Schedule No. 1

Ascertaining the Manufacturing Cost of Goods for the years 1906, 1907, 1908, and the average ratio of each component to the total cost for the three periods.

	1906	1907	1908	Total for 3 Years	Ratio to Total
MATERIALS:					
Inventory at beginning of the year	$ 39,223.16	$ 31,316.20	$ 33,416.20		
Purchases of the year	186,320.16	104,360.22	157,316.20		
Available for the year	$225,543.32	$135,676.42	$190,732.40		
Inventory at end of the year.	31,316.20	33,416.20	32,467.18		
Materials Consumed during the year	$194,227.12	$102,260.22	$158,265.22	$454,752.56	61.88%
PRODUCTIVE LABOR	90,322.24	61,212.06	72,106.14	223,640.44	30.43
MANUFACTURING EXPENSES	20,163.12	16,208.17	20,216.23	56,587.52	7.69
TOTAL MANUFACTURING COST	$304,712.48	$179,680.45	$250,587.59	$734,980.52	100%

Schedule No. 2

Using percentages obtained by Schedule No. 1, and totals of components shown by that schedule, to ascertain the Cost of Goods Sold during the years 1906, 1907, 1908.

	Raw Materials	Labor	Overhead	Total	Ratio in Order Given
COST OF GOODS SOLD:					
Initial Inv. of Goods in Process, Jan. 1, 1906..	$ 3,777.22	$ 1,857.48	$ 469.42	$ 6,104.12	61.88% 30.43% 7.69%
Materials Consumed during the three years (as established by Sched. No. 1)	454,752.56			454,752.56	
Productive Labor (as per Schedule No. 1).....		223,640.44		223,640.44	
Manufacturing Expense (as per Schedule No. 1)....			56,587.52	56,587.52	
Total Cost of Goods Put in Process.....	$458,529.78	$225,497.92	$57,056.94	$741,084.64	
Closing Inv. of Goods in Process, Dec. 31, 1908.	2,606.52	1,281.78	323.92	4,212.22	61.88% 30.43% 7.69%
Cost of Goods Finished during the three years.	$455,923.26	$224,216.14	$56,733.02	$736,872.42	
Initial Inv. of Finished Goods, Jan. 1, 1906....	13,132.85	6,458.18	1,632.07	21,223.10	61.88% 30.43% 7.69%
Finished Goods Available for Sale during the three years.....	$469,056.11	$230,674.32	$58,365.09	$758,095.52	
Closing Inv. of Finished Goods, Dec. 31, 1908...	12,223.45	6,010.98	1,519.04	19,753.47	61.88% 30.43% 7.69%
Cost of Goods Sold (by components).....	$456,832.66	$224,663.34	$56,846.05	$738,342.05	61.88% 30.43% 7.69%
SALES OF THE THREE-YEAR PERIOD (Net).....					$904,317.84
RATIO OF COMPONENTS OF COST SOLD TO NET SALES.....	50.52%	24.85%	6.28%	81.65%	

Schedule No. 3

Obtaining the Cost Components of the Goods Available for Sale for the period from January 1 to May 1, 1909, the amount of such cost consumed by the sales of the period, and lastly, the theoretical inventory at the time of the fire.

	Material	Labor	Overhead	Total	Ratio in Order Given
Initial Inventory of Goods in Process, Jan. 1, 1909.....	$ 2,606.52	$ 1,281.78	$ 323.92	$ 4,212.22	61.88% 30.43% 7.69%
Initial Inventory of Raw Materials, Jan. 1, 1909.	32,467.18			32,467.18	
Initial Inventory of Finished Goods, Jan. 1, 1909	12,223.45	6,010.98	1,519.04	19,753.47	61.88 30.43 7.69
Total Initial Inventories, Jan. 1, 1909..	$47,297.15	$ 7,292.76	$1,842.96	$ 56,432.87	
Purchases of the period...	46,375.22	21,618.06	5,167.20	73,160.48	
Total Manufacturing Cost of Goods.....	$93,672.37	$28,910.82	$7,010.16	$129,593.35	
Portion Consumed by Sales.	47,108.11	23,165.80	5,854.26	76,128.17	50.52% 24.85% 6.28%
Theoretical Inventory at time of fire.....	$46,564.26	$ 5,745.02	$1,155.90	$ 53,465.18	

STATEMENT OF CLAIM

Materials in Inventory, May 1, 1909.....	$46,564.26
Labor in Inventory " " "	5,745.02
Total.....	$52,309.28

Claimed:

$42\frac{1}{2}\%$ of $52,309.28 = $22,231.44

P R O B L E M N O. 1

ILLUSTRATING THE PRESENTATION OF FINANCIAL STATEMENTS

PROBLEM NO. 1

ILLUSTRATING THE PRESENTATION OF FINANCIAL STATEMENTS

Text of the Problem

The trial balance of the American Manufacturing Company, as at December 31, 1918 (before closing the books for the year) is given below. In addition to the information obtainable from the trial balance, the following data must be taken into consideration in closing the books.

Consignment (sold).
5% commission on selling price of consignment (estimated on 10% profit).
Inventory of merchandise at December 31, 1918, $60,000 - raw materials $30,000.
Inventory of tools at December 31, 1918, $4,500.
Inventory of patterns at December 31, 1918, $4,000.
Depreciation of buildings at rate of 2¾%.
Depreciation of machinery and machine tools at rate of 10%.
Amortization of patents at rate of 6%.
Depreciation of office furniture and fixtures at rate of 10%.
Half of 1% of the net sales is charged each year to profit and loss, and credited to reserve for bad debts.

It is the custom of the company to treat its investments in real estate and buildings as a separate investment, from which it expects to receive 5%.

Insurance unexpired, and accrued accounts need not be considered.

REQUIRED:

(a) Balance Sheet as at December 31, 1918.
(b) Statement of Income and Profit and Loss for the year.
(c) Surplus Account as at December 31, 1918.

TRIAL BALANCE - DECEMBER 31, 1918

Land	$ 30,000.00	$
Buildings	50,000.00	
Discounts - Trade	4,030.00	
Discounts - Trade		6,300.00
Discounts - General		4,500.00
Advances on Consignments (being 90% of cost)		5,030.00
Expenses and Commission of Buyers	5,000.00	
Machinery and Machine Tools	40,000.00	
Tools - Shop and Hand	7,000.00	
Patents	25,000.00	
Patterns (not used for process)	5,000.00	
Merchandise Purchases	420,000.00	
Notes Receivable	1,500.00	
Accounts Receivable - Customers'	250,000.00	
Insurance on Buildings	300.00	
Insurance on Machinery and Tools	500.00	
Insurance on Merchandise	650.00	
Taxes on Real Estate	1,500.00	
Inventory Raw Materials, January 1, 1918	25,000.00	
Interest - General	7,000.00	
Bond Interest	2,500.00	
Cash	45,000.00	
Direct Labor	310,000.00	
Indirect Labor	55,000.00	
Power	21,000.00	
Repairs to Buildings and Tenements	950.00	
Repairs to Machinery	1,310.00	
Factory Expenses	3,010.00	
Employers' Liability	4,000.00	
Office Pay-Roll	18,000.00	
Inventory of Merchandise, January 1, 1918	50,000.00	
Returned Sales	41,000.00	
Merchandise Sales		1,090,500.00
Allowances on Defective Goods	10,900.00	
Office Furniture and Fixtures	5,700.00	
Salaries of Officers	15,000.00	
Postage	2,000.00	
Telegrams and Telephone	1,800.00	
Taxes on Personal Property	1,000.00	
Collection and Exchange	700.00	
Stationery and Printing	3,050.00	
Freight Inward on Purchases	23,000.00	
Freight Outward on Sales to F.O.B. Points	11,000.00	
Cartage and Express Inward on Purchases	3,750.00	

Bonding of Employees - Office.....	$ 250.00	$
Traveling Expense - Salesmen.....	13,000.00	
Salesmen's Commissions and Salaries..	44,300.00	
Accounts Receivable written off.....	7,400.00	
Bonds Outstanding.....		40,000.00
Bills Payable.....		100,000.00
Accounts Payable - Creditors'.....		43,000.00
Surplus.....		39,020.00
Capital Stock.....		200,000.00
Reserve for Depreciation of Buildings.....		5,250.00
" " Depreciation of Machinery.....		12,500.00
" " Amortization of Patents..		7,500.00
" " Depreciation of Office Furniture and Fixtures.		2,500.00
" " Losses of Accounts Receivable.....		13,000.00
Storage of Raw Materials.....	500.00	
Directors' Fees.....	1,500.00	
	$1,569,100.00	$1,569,100.00

Discussion of Problem No. 1

Before the main requirements of this problem can be fulfilled, a quantity of analytical work must be accomplished.

In regard to the consignment of goods outward, all we know is that they have all been sold by the consignee, on a basis of a profit of 10%, subject to commissions of 5% on the selling price, and to advances by the consignee to the consignor amounting to 90% of the cost of the goods. But, as the trial balance submitted to us is "before closing," we must adjust the books so that the results of the consignment may be properly expressed.

In regard to the policy of the company to make its investment in real estate produce 5%, we must produce the account which will fulfill the requirements, and so adjust the books that they will show a charge for rent, properly allocated, producing 5% return over and above all cost.

We must then provide for the reserves and allocate the provisions thereof, as between cost of manufacture and profit and loss charges; take care of the portion of the temporary accounts, which the establishment of the inventory has made real or nominal; and finally, place where they belong such facts as appear to have been placed in suspense instead of being charged or credited to the accounts to which they belong. Until we have accomplished this preliminary work, it would be idle to attack

the problem, or to formulate a plan of attack. Let us first clear the ground in front of us.

CONSIGNMENTS

At the conclusion of his sales of consigned goods, the consignee must have submitted an account sales, containing credits and charges, and showing a balance due the consignor, forwarded by the consignee or to be forwarded at some future time. The question is: What did that account sales contain?

Since the advances made by the consignee are 90% of the cost of the goods, and amount to $5,030, the cost of the goods consigned to him must have been:

$$\frac{5,030 \text{ X } 100}{90} = \$5,588.88$$

Correspondingly, if 90% of the sale price of the goods is their cost, i.e., $5,588.88, the goods must have been sold for:

$$\frac{5,588.88 \text{ X } 100}{90} = \$6,209.87$$

And lastly, if the consignee receives a commission of 5% on the sale price of $6,209.87, he must have deducted from the proceeds of his sales the sum of $310.49. Hence, we reconstitute the account sales as follows:

PRO FORMA ACCOUNT SALES

BY THE CONSIGNEE TO THE CONSIGNOR

Received for your account:

Goods, consigned at a value of..... to be sold at a profit of 10%	$5,588.88
Sold for your account.....	5,588 88
Inventory on hand (none)	

To your credit:

Proceeds of sales of goods consigned.....	$6,209.87

To your debit:

Commissions of 5% on sale price	$ 310.49	
Advances, 90% of cost.....	5,030.00	
Total to your debit.....		5,340.49
Balance to your credit (to be forwarded on January 10, 1918) (assumed).....		$ 869.38

REAL ESTATE OPERATING ACCOUNT

Since the policy of the company is to make 5% on its investment in real estate, it intends to recover from someone (either the purchaser of its goods, or its operating departments) all the cost of carrying and operating the land and the buildings, plus a return of 5% on the total amount of capital invested in the land and the buildings. In any event, the recovery will have to be made through the sale price of the goods. The account giving expression to the company's policy is easy enough to build up.

REAL ESTATE OPERATING ACCOUNT

Depreciation of Buildings	$1,375.00
Insurance on Buildings	300.00
Taxes on Real Estate	1,500.00
Repairs to Buildings	950.00
Income on Land and Buildings	4,000.00
Total	$8,125.00

The question to be settled at this point is: Will the company charge its operations with $8,125, under the form of rent of its land and buildings, and when establishing the sale price of its goods, attempt to recover from the buyers $8,125 less the $4,000 already recorded as an income; or will it consider the net balance as a general expense, representing actual cost of carrying and maintaining the real estate, and recover it as such from the purchaser of its goods, by merely adding the amount, together with the other items of the group, to the amount of other cost recoverable?

You can see very readily that the situation remains unchanged, whatever policy may be adopted. That is precisely what happens in every instance where an attempt is made to carry as cost items which do not represent actual expenditures: nothing whatever is accomplished.

To settle the question, so far as this problem is concerned, we will, in due course, journalize the real estate operating accounts in such a manner as to carry out the company's desire; but when expressing results in the statement of income, we will be satisfied to carry the actual cost of real estate operations under the caption "General Expense," a subcaption of

"Administration and General Expense" which intends to collate all expenditures incurred for the benefit of the enterprise in general.

RESERVES

Having charged the depreciation of the buildings to the Real Estate Operating account, we must now decide what to do with the other items of depreciation and amortization.

The word "reserve" is probably the most misused term in the whole terminology of accountancy. Speaking properly, a reserve can be nothing more than an appropriation of profits intended to be held back from distribution for either of two well-defined purposes.

1. For the redemption of debts incurred for the very purpose of making greater profits possible.

2. To cover losses of an uncertain nature, accumulating for a certain number of periods until the eventual disappearance of the capital investment to which they apply.

If the loss has been positive, it should be written off the account which sustained the loss. This, however, has the disadvantage of obstructing the vision of the original status of the investment account, since its progressive depreciation can only be gauged by a series of comparisons between financial statements. To obviate this defect, it has become the custom to accumulate losses of invested values in credit accounts which measure the extent of the losses, and postpone the credit to the asset account until its value has entirely disappeared. These accounts are not reserves; they are accounts with accumulated losses, and their

treatment in the balance sheet should be radically different from that accorded to reserves proper. Accumulated depreciation should be deducted from the asset value in the short column of the statement, and the asset extended net in the long column. Reserves should be treated as appropriations of surplus, under the caption "Surplus."

In the problem under review, the depreciation of the machinery and machine tools must be charged to cost if it is positive, and should be deducted from profits if it is uncertain. We will assume that it is positive, and, therefore, when journalizing we will not call the credit account "Reserve"; we will call it "Accumulated Depreciation." In the balance sheet, we will treat it as indicated above.

The depreciation of office furniture and fixtures is either positive or estimated. In the former case, it is a loss of invested capital which can be charged to general expense under the caption "Administrative and General Expense," or again, charged to Profit and Loss, in the section reserved for losses of invested values maturing in the present period.

If it is estimated, and it is expected that the furniture will still be in use at the time when its whole value has been written off to expense or to Profit and Loss, the supposed loss is nothing more than the recording of a desire to be conservative, and should be set up as an appropriation of surplus. We will, however, consider the loss as positive, and charge it to Profit and Loss.

In the case of the shop and hand tools, the loss has occurred through use instead of through depreciation. No record has

been kept of the small tools consumed through process, the policy adopted being to accept inventory fluctuations as an index of the expense incurred. Hence, in this case, we have a positive loss, directly chargeable to cost, and actually written off the account.

The depreciation of the buildings, being a charge to the Real Estate Operating account, is supposed to be positive, and must be considered, so far as the credit account is concerned, as accumulated depreciation.

As to patterns, they have lost part of their value, not through use as standards in the factory, but merely through the efflux of time and the disappearance of their usefulness. Hence, the portion of their value lost in the present period must be charged to Profit and Loss, the loss being deducted from the asset.

Patents do not depreciate; their life merely expires gradually. As their years of monopolistic value pass on, it is deemed advisable to write off proportionate amounts of their cost. This represents the vanishing of capital, and must be expressed as a Profit and Loss charge.

We now come to the reserve for possible losses in accounts receivable. The method of providing annually, out of profits, for an amount of possible losses, equivalent to a certain portion of the accounts receivable outstanding at the end of the year, or equivalent to a certain portion of the net sales, condemns itself through its eternally recurring remainder or through its constantly increasing amount. When, besides, there exists a credit department whose functions are to activate collections and

eliminate losses, the periodical recurrence of a reserve for an immutable portion of the sales is a denial of the value of the department.

A reserve for accounts receivable should be created only for such accounts as are doubtful. The journal entry expressing such a reserve should contain the names of the accounts provided for. When losses occur, if the accounts have been provided for, the reserve should be charged; if the accounts provided for are collected, the corresponding portion of the reserve should be sent back to surplus; if accounts are lost for which no reserve has been created, the Profit and Loss account should be charged.

You will notice that in this problem a provision for bad accounts must be made out of profits in the amount of 1/2 of 1% of the net sales. By net sales must be understood gross sales less all deductions therefrom which have constituted a cancellation, in part or in full, of the original contract of sale. Hence the net sales are:

Gross Sales by the Company.....		$1,090,500.00
Deductions:		
Returned Sales.....	$41,000.00	
Trade Discounts.....	4,030.00	
Allowances on Defective Goods.....	10,900.00	55,930.00
Net Sales.....		$1,034,570.00

No provision is made for the sales by the consignee. Therefore, the amount to be provided for out of profits is $5,172.85. On

the other hand, there have been lost during the year $7,400 of accounts receivable, for which a reserve of $13,000 has been provided. Irrespective of the fact that the amount lost should have been charged to the reserve, do you not see that after one year's time the company must be in a position to know whether or not the remainder of the reserve previously created is lost? If it is lost, the accounts receivable which it compensates should disappear, as well as the reserve. If it is not lost, what is the sense of retaining it on the books; and above all, what is the logic of its increase to cover a portion of the sales of the present period?

Of course, we shall have to do what the problem calls for, but let me ask you, in the light of the status of the average reserve for accounts receivable, whether or not the Treasury Department was justified in refusing to accept such reserves as deductions from profits?

INVENTORIES

The problem has assumed a case, admittedly odd but not impossible, where there is neither an opening nor a closing inventory of goods in process. As a general rule, I shall neither defend nor praise the problems presented in this course; they require neither, for their purpose places them above both; and besides, it is their fate to be badly treated only by those who do not understand them or who fail to approach them in the proper spirit.

We thus have only two sets of accounts to adjust in connection with inventories:

Inventory of Raw Materials (new and old)
Inventory of Finished Materials (new and old)
Purchases of Raw Materials
Manufacturing Cost

In regard to the account Purchases of Materials, it seems to be the tradition to send it in its entirety to the debit side of the Profit and Loss account, or, if such is the method adopted, to the debit side of the Manufacturing account, and in either case to adjust it by further debiting or by crediting to the final account the decrease or the increase of the new inventory. There seems to be no reason why the amount or purchases of materials which have not entered the manufacturing process should not be credited to the account "Purchases," and, in turn, the balance of the purchases transferred to an account called "Purchases Consumed by Process," or to a manufacturing account, or directly to the Profit and Loss account. There is, in fact, no reason why, in these days of highly analytical books of original entry, there should be two accounts with goods instead of merely one reading:

Debit Side:
Inventory
Purchases

Credit Side:
Inventory
Materials Consumed, or
some appropriate account

We owe this confusion of accounting facts, and the subsequent obscure and often ridiculous closing entries, to the influence of philosophers on accounting, who in an attempt to simplify bookkeeping have involved it needlessly. But, when this is all said, the necessity of applying ordinary bookkeeping rules is still facing us.

As to the account Merchandise Inventory, it should read undoubtedly "Finished Goods" and contain more debits than it does at present, since the problem reflects the results of the books of a manufacturing concern. Apparently the problem is not interested in the theory of cost and in the method of creating in the general ledger so-called "control accounts" of cost elements. Indeed, we will see, as we proceed, that its only purpose is to test the student's knowledge of the theory of the financial statements.

Having accomplished our purpose, which was to clear the ground for action, we are now in a position to bring into play the journal entries which will adjust the books. This done, we will take a trial balance of the adjusted accounts, rearranging it in accordance with the ideal arrangement of the ledger, as prescribed by theory of accounts. This will give us a far better vision of the problem, bring to the surface our conception of the theory of the allocation of real accounts and nominal accounts by groups, and practically give us the skeleton of the financial statements required by the problem.

You realize, of course, that the work that we are doing in this problem is much more extensive than would be advisable at an examination. Do not lose track of the fact that I have in mind the awakening of your latent accounting faculties, much more than the examination table. The latter will cease to be a consideration to you, when our work is finished, and render easier and more positive the presentation of financial statements.

JOURNAL ENTRIES

Accounts Receivable	$ 869.38	
Commissions on Consignments	310.49	
Advances on Consignments	5,030.00	
To Sales of Consigned Goods		$6,209.87

To express the results of the account sales received this day from consignee.

Note: Remember that, in the case of this problem you need not trouble with any entry affecting the account with goods, since (as evidenced by the trial balance) no entry whatever was made when part of them were consigned outward.

Depreciation of Buildings	$1,375.00	
Depreciation of Machinery and Tools	4,000.00	
Tools Consumed by Process	2,500.00	
Depreciation of Patterns	1,000.00	
Amortization of Patents	1,500.00	
Appropriation for Accounts Receivable	5,172.85	
Depreciation of Furniture and Fixtures	570.00	
To Accumulated Depreciation of Buildings		$1,375.00
" Accumulated Depreciation of Machinery and Tools		4,000.00
" Accumulated Depreciation of Shop and Hand Tools		2,500.00
" Accumulated Depreciation of Patterns		1,000.00
" Accumulated Amortization of Patents		1,500.00
" Reserve for Losses of Accounts Receivable		5,172.85
" Accumulated Depreciation of Furniture and Fixtures		570.00

To set up provisions for possible losses, and record losses measured by inventories of physical values.

Inventory of Raw Materials (new account)..	$30,000.00	
Inventory of Merchandise (new account)....	60,000.00	
To Inventory of Raw Materials (old account).....		$30,000.00
" Inventory of Merchandise (old account).....		60,000.00

To set up inventories at the end of the period.

Inventory of Raw Materials (old account)..	$ 5,000.00	
Inventory of Merchandise (old account)....	10,000.00	
To Profit and Loss.....		$15,000.00

To set up, in the Profit and Loss account, the increases of inventories which will offset the excess of cost of goods as reflected by the transfer of the nominal accounts affecting it.

Reserve for Losses of Accounts Receivable.	$ 7,400.00	
To Accounts Receivable written off.		$ 7,400.00

For accounts receivable compensated by reserve, lost during the period.

Real Estate Operating Account.....	$ 8,125.00	
To Depreciation of Buildings.....		$ 1,375.00
" Insurance on Buildings.....		300.00
" Taxes on Real Estate.....		1,500.00
" Repairs to Building.....		950.00
" Income from Rental of Buildings.		4,000.00

To accumulate the cost of upkeep of the buildings, and arrive at the rental charge to the operating department.

Rent, Factory, and Office.....	$8,125.00	
To Real Estate Operating Account.....		$8,125.00

To transfer.

TRIAL BALANCE ADJUSTED AND REARRANGED

Land.....	$ 30,000.00	Capital Stock.....	$ 200,000.00
Buildings.....	50,000.00	Bonds Outstanding...	40,000.00
Machinery and Machine Tools.....	40,000.00	Accounts Payable....	43,000.00
Shop and Hand Tools..	4,500.00	Bills Payable.....	100,000.00
Patents.....	25,000.00	Accumulated Depr. of Buildings.....	6,625.00
Patterns.....	4,000.00	Accumulated Depr. of Machinery and Tools	16,500.00
Office Furniture and Fixtures.....	5,700.00	Accumulated Depr. of Furniture and Fixtures.....	3,070.00
Inventory of Raw Mat.	30,000.00		
Inventory of Finished Merchandise.....	60,000.00	Accumulated Amortization - Patents..	9,000.00
Cash.....	45,000.00	Reserve for Losses of Accounts Rec...	10,772.85
Accounts Receivable..	250,869.38	Surplus.....	39,020.00
Notes Receivable.....	1,500.00	Trade Discounts on Purchases.....	6,300.00
Returned Sales.....	41,000.00	Profit and Loss (Increases of Inv.)..	15,000.00
Trade Discounts on Sales.....	4,030.00	Sales by Home Office	1,090,500.00
Allowance on Defective Goods.....	10,900.00	Sales of Consigned Goods.....	6,209.87
Freight Outward on Sales.....	11,000.00	General Discounts...	4,500.00
Freight Inward on Purchases.....	23,000.00	Rental of Real Estate.....	4,000.00
Cartage and Expressage Inward.....	3,750.00		
Purchases.....	420,000.00		
Storage of Raw Mat...	500.00		
Expenses and Commissions of Buyers.	5,000.00		
Direct Labor.....	310,000.00		
Indirect Labor.....	55,000.00		
Power.....	21,000.00		
Repairs - Machinery..	1,310.00		
Depreciation - Machinery.....	4,000.00		
Tools Consumed by Process.....	2,500.00		
Factory Expense.....	3,010.00		
Traveling Expense - Salesmen.....	13,000.00		

Commissions, Salaries - Salesmen.....	$ 44,300.00	$
Commission to Consignee.....	310.49	
Salaries of Officers.	15,000.00	
Office Pay-Roll.....	18,000.00	
Telegrams and Telephones.....	1,800.00	
Stationery and Printing.....	3,050.00	
Directors' Fees.....	1,500.00	
Postage.....	2,000.00	
Interest - General...	7,000.00	
Bond Interest.....	2,500.00	
Rent of Factory and Office.....	8,125.00	
Collection and Exchange.....	700.00	
Insurance - Machinery and Tools.....	500.00	
Insurance - Merchandise.....	650.00	
Insurance - Liability	4,000.00	
Bonding - Office Employees.....	250.00	
Taxes on Personal Property.....	1,000.00	
Depreciation of Patterns.....	1,000.00	
Depreciation of Office Furniture and Fixtures.....	570.00	
Amortization of Patents.....	1,500.00	
Appropriation for Accounts Receivable	5,172.85	
	$1,594,497.72	$1,594,497.72

Using the adjusted and rearranged trial balance as a basis, we are now going to build up the Statement of Income and Profit and Loss, the Surplus Account, and the Balance Sheet. Then we will discuss their mechanism.

Solution of Problem No. 1

AMERICAN MANUFACTURING COMPANY

STATEMENT OF INCOME AND PROFIT & LOSS

For the Year Ended December 31, 1918

INCOME FROM SALES:			
Sales by the Company:			
Gross Sales		$1,090,500.00	
Less Returned Sales		41,000.00	
Net Sales		$1,049,500.00	
Deductions:			
Trade Discounts	$ 4,030.00		
Allowances on Defective Goods	10,900.00		
Freight to F.O.B. Points	11,000.00		
Total Deductions		25,930.00	
Income from Sales by the Company		$1,023,570.00	
Sales by the Consignee		6,209.87	
Income from Sales			$1,029,779.87
COST OF GOODS SOLD:			
Cost of Goods Put in Process & Finished:			
Materials:			
Purchases	$420,000.00		
Less Trade Discounts	6,300.00		
Balance	$413,700.00		
Deduct Increase of Inventory, Dec. 31, 1908	5,000.00		
Cost of Materials Put in Process		$ 408,700.00	
Additional Cost:			
Freight and Cartage Inward	$26,750.00		
Storage of Raw Mat.	500.00		
Expenses and Commission of Buyers	5,000.00		
Total Additional Cost		32,250.00	
Total Cost of Materials		$ 440,950.00	
Direct Labor		310,000.00	

Factory Overhead:			
Indirect Labor.....	$ 55,000.00		
Power.....	21,000.00		
Repairs - Machinery....	1,310.00		
Depr. - Machinery.....	4,000.00		
Tools Consumed by Proc.	2,500.00		
Factory Expense.....	3,010.00		
Total Factory Overhead.....		86,820.00	
Total Cost of Goods Put in Process and Finished.....		$837,770.00	
Transfer to Inventory:			
Deduct Increase of Inventory of Finished Goods, Dec. 31, 1918.....		10,000.00	
Cost of Goods Put in Process, Finished, and Sold...			827,770.00
GROSS PROFIT ON SALES.....			$ 202,009.87
COMMERCIAL EXPENSES:			
Traveling Expenses of Salesmen.....	$ 13,000.00		
Commissions and Salaries of Salesmen...	44,300.00		
Commissions to Consignee.....	310.49		
Total Commercial Expense.....			57,610.49
COMMERCIAL PROFIT.....			$ 144,399.38
ADMINISTRATION AND GENERAL EXPENSE:			
Administration:			
Salaries of Officers.....	$ 15,000.00		
Office Pay-Roll.....	18,000.00		
Telegrams and Telephones.	1,800.00		
Stationery and Printing..	3,050.00		
Directors' Fees.....	1,500.00		
Postage.....	2,000.00		
Total Administration Expense.....		$ 41,350.00	
General Expenses:			
Cost of Financing:			
Interest-General.....	$ 7,000.00		
Bond Interest.....	2,500.00		
Collection and Exchange	700.00		
Total.....	$ 10,200.00		
Less Discounts Earned..	4,500.00		
Remainder (Cost of Financing) (forward)...	$ 5,700.00		

Cost of Financing (forwarded)	$ 5,700.00		
Upkeep of, and Carrying Charges on Real Estate (Net)	$ 4,125.00		
Protection of Capital:			
Insurance - Machinery, and Tools	$ 500.00		
Insurance - Merchandise	650.00		
Liability Insurance	4,000.00		
Bonding of Office Employees	250.00		
Total Protection of Capital	$ 5,400.00		
Taxes on Personal Property	$ 1,000.00		
Total General Expenses		16,225.00	
Total Administration and General Expense			57,575.00
PROFIT FROM THE OPERATIONS OF THE YEAR			$ 86,824.38
PROFIT AND LOSS CHARGES:			
Portion of Value of Patterns written off		$ 1,000.00	
Depreciation of Office Furniture and Fixtures		570.00	
Amortization of Patents (portion for the year)		1,500.00	
Total Profit and Loss Charges			3,070.00
PROFIT AND LOSS SURPLUS FOR THE PERIOD			$ 83,754.38
APPROPRIATION FOR RESERVES:			
For Losses of Accounts Receivable			5,172.85
PROFIT AND LOSS SURPLUS - Balance transferable to Surplus			$ 78,581.53

SURPLUS ACCOUNT

APPROPRIATED SURPLUS:		
Jan. 1, 1918 -	Balance - Appropriated for losses of Accounts Receivable.....	$ 13,000.00
Dec. 31, 1918 -	Loss of appropriated reserve.....	7,400.00
		$ 5,600.00
	- Appropriation for Sales of the period...	5,172.85
Dec. 31, 1918 -	Total Surplus Appropriated.....	$ 10,772.85
FREE SURPLUS:		
Jan. 1, 1918 -	Balance.....	$ 39,020.00
Dec. 31, 1918 -	Transferred from Profit and Loss.....	78,581.53
Dec. 31, 1918 -	Total Free Surplus.....	$117,601.53
TOTAL SURPLUS, APPROPRIATED AND FREE.....		$128,374.38

THE AMERICAN MANUFACTURING COMPANY

GENERAL BALANCE SHEET, AT DECEMBER 31, 1918

CAPITAL ASSETS:

Land		$ 30,000.00
Buildings	$ 50,000.00	
Less Accumulated Depreciation	6,625.00	43,375.00
Machinery	$ 40,000.00	
Less Accumulated Depreciation	16,500.00	23,500.00
Tools		4,500.00
Patents	$ 25,000.00	
Less Accumulated Amortization	9,000.00	16,000.00
Patterns		4,000.00
Office Furniture	$ 5,700.00	
Less Accumulated Depreciation	3,070.00	2,630.00
Total Capital Assets		$124,005.00

OPERATING ASSETS:

Working and Trading:		
Inventory of Raw Materials	$ 30,000.00	
Inventory of Finished Goods	60,000.00	
Total Working and Trading		$ 90,000.00
Current:		
Cash	$ 45,000.00	
Accounts Receivable	250,869.38	
Notes Receivable	1,500.00	
Total Current Assets		297,369.38
Total Operating Assets		387,369.38
TOTAL ASSETS		$511,374.38

CAPITAL LIABILITIES:

Capital Stock Outstanding	$200,000.00	
Bonds Outstanding	40,000.00	
Total Capital Liabilities		$240,000.00

OPERATING LIABILITIES:

Current Debt:		
Accounts Payable	$ 43,000.00	
Bills Payable	100,000.00	
Total Operating Liabilities		143,000.00

SURPLUS:

Appropriated:		
For Losses of Accounts Receivable	$ 10,772.85	
Free	117,601.53	
Total Surplus		128,374.38
TOTAL LIABILITIES		$511,374.38

THE STATEMENT OF INCOME AND PROFIT AND LOSS

In its broad aspect, this statement is nothing more than the classified exhibit of the items of cost to be recovered through the sale price, and of the amount of profit included therein, representing the excess of the proceeds over and above all cost. In so far as it exhibits recoverable cost, it is essentially a copy of all the ledger accounts raised during the accounting period for the recording of economic factors. Go down the framework of the statement, and you will perceive that the arrangement of the section involving the presentation of the manufacturing cost is precisely that of the ledger accounts with Goods in Process and with Finished Goods. The account with Goods in Process, if kept in the ledger, would read:

Initial Inventory....	$ --- --	Transfer to Finished Goods.....	$ --- --
Materials Put in Process.....	--- --	Closing Inventory.....	--- --
Labor.....	--- --		
Overhead.....	--- --		
	$ --- --		$ --- --
Initial Inventory....	$ --- --		

Because it is a copy of recoverable cost, the statement of income has been found susceptible of departmentalizing cost. In its evolution, it has become a vehicle for the application of the theory of organization, commercial law, and economics.

Thus, the sales department finds its activities faithfully exhibited as to volume, cancellations of orders, deductions from gross proceeds, and final economic result. Then, after the cost of the goods sold by the sales organization has been opposed

to the net sales, in order to arrive at the gross profits the cost of the sales organization itself is recorded, the purpose being to ascertain the portion of the gross profits on sales consumed by the cost of selling.

Referring to the sales section of the Statement of Income, the only item which might appear to you to be doubtful as to its standing as a deduction, is the item "Freight to F.O.B. Points." The theory which directs the allocation of the freight to f.c.b. points, assuming the deduction from sales, is to the effect that, as a matter of law, the contract of sales includes in its provisions the duty of the vendor to pay delivery charges to such point as is agreed upon between the contracting parties, before the sale is consummated.

Therefore, the sale price includes delivery cost, and to that extent it is not income. That cost must be deducted from the amount recovered, before the cost of the goods sold may be opposed to the income from sales.

Economically, cost of financing the enterprise, cost of protecting the invested capital, rent paid for buildings owned by others, and taxes, are not conditions sine qua non of manufacturing. Therefore, they cannot be included in manufacturing cost. It is customary to classify the items of expense referred to above, as "Deductions from Income," because, speaking generally, rent, interest, insurance premiums, etc., are income of the party who provides the benefit, and as a consequence are deductions from the income of the party who uses these benefits for the purpose of income.

The reason for my avoidance of the caption "Deduction from Income" in the Statement of Income submitted to you, is that its adoption renders the terminology of the statement unclear and confusing. It seems to have come into general use by accountants as a result of its application to manufacturing and trading by accountants of high repute, whose training had been received in railroad offices. In railroad accounting the division of earnings as between:

Earnings from Operations
Cost of Operations
Earnings from Outside Sources
Cost of Outside Earnings

is perfectly natural. And it was just as natural for railroad men to divide the income of any business enterprise into two sections:

Income from Operations
Income from Other Sources
Cost of Operating Income
Cost of Income from Other Sources

The great trouble, however, is that in railroad accounting the division was absolutely necessary to fulfill the requirements of governmental commissions responsible for fair rate-making; whereas ordinary business concerns, having no such requirements, do not readily absorb the idea that the expense incurred in financing the enterprise has nothing to do with its operations.

With the foregoing in view I have avoided the classifications, "Additions to" and "Deductions from" Income, and included the expenditures and benefits usually shown thereunder, as general expenses, classified according to the nature of the expense. In this manner, the profit from the operations of the year is depending upon all cost.

THE BALANCE SHEET

There are several types of balance sheets. Instead of speaking of the theory of the sundry types, I have deemed it advisable to illustrate them by appropriate problems. In this problem I have presented the most general form of the statement, the one generally referred to as the balance sheet of a going concern.

The capital assets are opposed to the capital liabilities, and the operating assets are opposed to the operating liabilities. The difference between the two sets of assets and liabilities is surplus. This surplus is of two kinds:

1. Appropriated for losses of an uncertain amount, part of which may have materialized, and part of which may not have.

2. Not appropriated, and hence available for distribution to those entitled thereto.

The caption "Operating Assets" has been made to include two captions which are generally stated separately, although they both constitute the same group of real accounts. From the point of view of operations, of credit, of economics, from any point of view whatever, there is no difference between the current or liquid assets on the one hand, and the working and trading assets on the other hand. Hence, the sum of these two subclasses of assets should be shown under a single caption.

As to the deduction of accumulated depreciation and amortization from the assets which have suffered the loss, the reason for such a treatment has been given to you in the discussion of the plan for the solution of this problem. Bear this rule in mind, and your handling of depreciation will be simplified.

If depreciation is positive, it is charged to cost; as such it does not enter the domain of reserves, and must be deducted from the asset in the balance sheet. If depreciation is not positive, is resorted to merely as a precaution, and is arrived at in a manner very unlikely to produce the truth, it should not enter the cost of the goods, and should be treated as a reserve in the surplus section of the balance sheet. Reserves of profits for losses which have not materialized positively, cannot be deducted from the asset account. They are surplus, nothing but surplus, even though such surplus is set aside.

P R O B L E M N O. 2

PREPARATION OF STATEMENTS FOR CREDIT PURPOSES

PROBLEM NO. 2

PREPARATION OF STATEMENTS FOR CREDIT PURPOSES

Text of the Problem

The following is the trial balance, at December 31, 1919, of the general ledger of A. K. Kemp and Company, fish packers, operating a factory in Maine, with a selling office in New York City:

Accounts Receivable written off.....	$ 420.10	$
Claims written off.....	45.09	
Salaries and Expenses of Salesmen....	5,530.20	
Commission of Salesmen.....	3,115.00	
Storage of Goods.....	5,316.00	
War Tax and Other Taxes.....	2,920.00	
Postage.....	139.10	
Stationery.....	79.50	
Telegrams and Cables.....	42.09	
Commissions of Buyers.....	2,130.00	
Discount on Sales.....	1,411.00	
Collections and Exchange.....	21.50	
Bankers' Commissions.....	1,940.00	
Rent of Offices, Packing Rooms, etc..	5,800.00	
Insurance Premiums.....	2,400.00	
Interest Paid.....	9,005.50	
Factory Land.....	5,000.00	
Factory Buildings.....	10,500.00	
Factory Machinery.....	4,000.00	
Fishing Equipment.....	3,800.00	
Docks and Wharves.....	2,000.00	
Claims Uncollected.....	2,500.00	
Cash in Bank.....	20,100.00	
Petty Cash.....	500.00	
Liberty Bonds.....	2,500.00	
Merchandise.....	1,754,627.12	
Accounts Receivable.....	30,500.00	
Sales.....		1,157,862.78
Discounts on Purchases.....		6,300.40
Brokerage on Purchases.....		3,103.00
Accounts Receivable previously written off.....		350.00
Credit Balances of Accounts Receivable written off.....		110.20
Adjustment of Insurance Premiums.....		200.00
Accounts Payable.....		53,000.00
Bank Acceptances.....		370,000.00

Due to Salesmen and Employees.....	$	$ 2,210.00
Res. for Depr. of Buildings.....8%		1,680.00
" " " " Machinery.....5%		400.00
" " " " Fishing Equip....6%		456.00
" " " " Docks and Wharv..3%		120.00
A. K. Kemp, Capital Account.....		280,549.82
	$1,876,342.20	$1,876,342.20

The closing inventory of merchandise, at December 31, 1918, totals $522,840; the insurance unexpired amounts to $930.

An audit of the books, records, and accounts reveals, among other things:

Cash in one depository only, subject to no liens whatever.
Liberty Loan bonds owned outright, and unpledged.
Accounts receivable, as follows:

(a) Under 30 days.....	$ 9,368.00
(b) Over 30 days, less than 60 days.....	16,911.30
(c) Over 60 days, less than 90 days.....	2,450.00
(d) Over 3 months, under 6 months.....	1,000.40
(e) Over 6 months, under 1 year	450.30
(f) Over 1 year.....	320.00
	$30,500.00

Sales are on a basis of 2% for 10 days, but the accounts are generally paid within 40 days. All accounts are considered good, with the exception of group (f), of which $140 is doubtful.

Merchandise

The analysis of the account gives the following information:

Inventories:	Initial Inventory	Closing Inventory
Packed Fish	$300,140.90	$390,674.70
Other Foods Packed	60,311.00	81,500.00
Oils in Barrels	40,000.00	37,650.00
Other Supplies Directly Used for Product, but not salable or pledgeable	20,000.00	10,000.00
Supplies Indirectly used for Product	2,100.00	2,000.00
Packing Materials	1,530.00	1,015.30
	$424,081.90	$522,840.00

Purchases:	
Packed Fish billed by Factory	$1,088,841.50
Packed Foods purchased outside	129,643.00
Oils in Barrels	85,610.00
Other Supplies Directly used for Product, but not salable or pledgeable	15,950.40
Supplies Indirectly used for Product	6,500.32
Packing Materials	4,000.00
	$1,330,545.22

The purchases from the factory do not include the cost of oils, supplies directly used, and supplies indirectly used for product, purchased by home office, and shipped to factory. The billing includes labor, fish, and factory overhead. The elements are readily ascertainable, but deemed not necessary for the purposes of this problem.

As the factory operates only during the summer and fall of the year, there are no goods in process at December 31, 1918.

Of the goods included in the closing inventory, there were pledged at December 31, 1918:

Packed Fish.....	$275,000.00
Other Packed Foods.....	50,000.00
Oils.....	15,000.00
	$340,000.00

The goods are pledged at a fair market value, less than the sale value, but sufficient to give the bank a margin of 25% on its loans. This is true, even though the operations of the year show a large loss. The loss is due to the adoption of a policy which was expected to secure large war contracts. These, however, did not materialize. Depreciation of physical units is not charged to cost. A. K. Kemp and Company desire to extend their line of credit.

REQUIRED:

(a) The Balance Sheet of the borrower at December 31, 1918, constructed in such a manner as to meet the requirements of the banks.

(b) The Statement of Income and Profit and Loss for the year ended December 31, 1918.

Discussion of Problem No. 2

There is no particular theory underlying the balance sheet established for presentation to bankers. It has, however, a very decided purpose, and to achieve that purpose it bends theory to its own desires. The vital issue, from the point of view of the banker, is the actuality of the resources claimed by the would-be borrower. By actuality I mean not only their physical existence, but, as well, their availability as a direct or indirect security for the loans sought.

The usual form of the balance sheet exhibits the status of a going concern. That status must be presented in such a manner as to afford a historical reading of the development of the enterprise. The assets to be presented first are the permanent or fixed assets acquired out of the original contributions of capital by the interested parties, or subsequently out of long-term liabilities, or out of profits obtained through operations and reinvested. The next group includes, naturally, the operating assets, often referred to as floating, liquid, or current, and by the French accountants as stato-dynamic; the latter term is interesting in that it describes fully the nature of the items of the group. "Stato" means that which stays, and "dynamic" that which bursts out, explodes out of the business, and falls back, i.e., returns, under another form.

To the group of capital assets, there is opposed the group of long-term liabilities; to the group of operating assets, there is opposed the group of short-term liabilities incurred for

the purpose of acquiring the operating assets, and supposed to be repaid out of the fund which these assets constitute.

You will readily see that the only section of the balance sheet which is of importance to the banker is the one which exhibits the operating status of the borrower. Is the operating end of his business in such a condition that he must actually be financed until better conditions prevail through changes of policy; or is the borrower temporarily embarrassed through circumstances which he cannot control; is financial help likely to accomplish the result claimed; are the proceeds of the loans to be applied to the promotion of financial schemes, or are they to help in the production of greater profits; lastly, what can be ascertained concerning the condition of the business from the point of view of available resources, in the event that the actual security for a loan (valuable as it may be while the concern is in the operating state) finds itself facing a forced sale, subject to the demoralizing influence of business liquidation?

The seriousness of the task confronting the banker about to pass on the advisability of a loan gives him the right to ignore the generally accepted meaning of accounting terminology. He has a perfect right to say that he will consider as current nothing which is likely to prove unavailable if he has to protect his loan; he may, at his convenience, prescribe a form of statement which, if judged from the narrow point of view of accounting standards, would be qualified as grotesque. The all-important point is that the

facts are presented to him in such a manner as to tell him the story which he wants to be told. Nothing else matters.

Coming right down to facts, the banker's requirements as to form come very near to giving exact expression to what the English accountants have called the "double form balance sheet"; that is to say, a statement divided into two self-balancing sections, one section being known as "financial," the other as "operating." Presented in the latter form, the balance sheet of A. K. Kemp and Company would read:

GENERAL BALANCE SHEET - AT DECEMBER 31, 1918

SECTION I - FINANCIAL

FIXED ASSETS:		A. K. KEMP'S CAPITAL:		
Factory Land	$ 5,000.00	(a) Appropriated for Reserves:		
" Buildings	10,500.00			
" Machinery	4,000.00			
Fishing Equipment	3,800.00	For Depr.	$3,984.00	
Docks and Wharves	2,000.00	For Accts. Rec.	140.00	$ 4,124.00
Total Fixed Assets	$ 25,300.00	(b) Unappropriated		175,836.00
OPERATING ASSETS - NET (See Sec.II).	154,660.00			
	$179,960.00			$179,960.00

SECTION II - OPERATING

WORKING AND TRADING ASSETS:		OPERATING LIABILITIES:	
Merchandise Ready for Sale	$472,174.70	Accounts Payable	$ 55,210.00
" Salable, or to be used for Product	37,650.00	Loans Payable	370,000.00
Supplies Directly used for Product	10,000.00	Total Operating Liabilities.	$425,210.00
" Indirectly " " "	2,000.00		
Packing Materials	1,015.30	EXCESS OF OPERATING ASSETS OVER OPERATING LIABILITIES (See Sec. I)	154,660.00
Total Working and Trading Assets	$522,840.00		
CURRENT ASSETS:			
Cash	$ 20,600.00		
Liberty Bonds	2,500.00		
Accounts Receivable	30,500.00		
Claims Collectable	2,500.00		
Total Current Assets	$ 56,100.00		
PREPAYMENTS:			
Insurance Unexpired	$ 930.00		
TOTAL OPERATING ASSETS	$579,870.00		$579,870.00

Compare the balance sheet given above with the solution of the problem as submitted below, and you will readily see the similarity between the "double form" and the "credit form." That in the credit form the operating assets should be segregated as between "operating" and "liquid," the latter term referring to availability, is perfectly natural, since only available assets could be sold to satisfy the bankers' claims. The other operating assets, while equally as good and important as any other from the point of view of the going concern, have no value to the banker. And as he wants to know how many dollars and cents of liquid assets are available to pay one dollar of liquid liabilities, he must, of course, draw very sharp lines.

The problem presented here is essentially simple; the solution is clear and devoid of complication. Neither of them requires further discussion.

Solution of Problem No. 2

A. K. KEMP AND COMPANY

STATEMENT OF ASSETS AND LIABILITIES

At December 31, 1918

QUICK ASSETS:		
Cash:		
In Banks	$ 20,100.00	
" Office	500.00	
Total		$ 20,600.00
Liberty Bonds:		
Owned Outright and Unpledged		2,500.00
Accounts Receivable for Merchandise (as per Schedule No. 1):		
Under 30 days	$ 9,368.00	
Over 30 days, under 60 days	16,911.30	
" 60 days, under 90 days	2,450.00	
" 3 months, under 6 months	1,000.40	
" 6 months, under 1 year	450.30	
Total Accounts Receivable		30,180.00
Merchandise (as per Schedule No. 2):		
Finished Merchandise Ready for Sale:		
Pledged to Secure Bank Acceptances:		
Packed Fish	$275,000.00	
Other Packed Foods	50,000.00	
Total Pledged	$325,000.00	
Unpledged:		
Packed Fish	$115,674.70	
Other Packed Foods	31,500.00	
Total Unpledged	$147,174.70	
Total Finished Merchandise	$472,174.70	

Materials Used for Product, Salable, and Pledgeable:			
Oils in Barrels:			
Pledged	$ 15,000.00		
Unpledged	22,650.00		
Total Materials Used for Product	$ 37,650.00		
Total Merchandise:			
Pledged	$340,000.00		
Unpledged	169,824.70		
Total		509,824.70	
TOTAL QUICK ASSETS			$563,104.70
CURRENT LIABILITIES:			
Accounts Payable (as per Schedule No. 3):			
To Creditors for Merchandise	$ 53,000.00		
" Employees and Salesmen	2,210.00		
Total Accounts Payable		$ 55,210.00	
Bank Acceptances (as per Schedule No. 4):			
Secured by Salable Merchandise of a cost value of $340,000.00 and of a fair market value of $425,000.00		370,000.00	
Total Current Liabilities			425,210.00
EXCESS OF QUICK ASSETS OVER CURRENT LIABILITIES			$137,894.70

Ratio: $1.32 of assets, for $1.00 of liability.

INVESTED, FIXED, AND OTHER ASSETS:

Real Estate:			
Land	$ 5,000.00		
Factory Buildings	10,500.00		
Total Real Estate	15,500.00		
Less Accumulated Depreciation of Buildings (8% per year)	2,520.00	$ 12,980.00	
Factory Machinery	$ 4,000.00		
Less Accumulated Depreciation (5% per year)	600.00	3,400.00	
Fishing Equipment	$ 3,800.00		
Less Accumulated Depreciation (6% per year)	684.00	3,116.00	
Docks and Wharves	$ 2,000.00		
Less Accumulated Depreciation (3% per year)	180.00	1,820.00	
Raw Materials Used for Product, Not Salable or Pledgeable		10,000.00	
Supplies Indirectly Used for Product		2,000.00	
Packing Materials		1,015.30	
Insurance Premiums Unexpired		930.00	
Claims Uncollected		2,500.00	
Accounts Receivable:			
Over one year	$ 320.00		
Less Reserve	140.00	180.00	
Total Invested, Fixed, and Other Assets			$ 37,941.30

OTHER LIABILITIES AND CAPITAL:

A. K. Kemp, Capital	$175,836.00

SUMMARY

Quick Assets	$563,104.70	Current Liabilities	$425,210.00
Invested, Fixed, and Other Assets	37,941.30	A. K. Kemp, Capital	175,836.00
	$601,046.00		$601,046.00

A. K. KEMP AND COMPANY

STATEMENT OF INCOME AND PROFIT & LOSS

For the year ended December 31, 1918

INCOME FROM SALES - No returns, no deductions.....						$1,157,862.78
COST OF GOODS SOLD:						
Unfinished Merchandise:						
	Initial Inventory	Purchases	Available	Closing Inventory	Consumed	
Oils in Bbls.....	$ 40,000.00	$ 85,610.00	$ 125,610.00	$ 37,650.00	$ 87,960.00	
Sup. Dir. used.....	20,000.00	15,950.40	35,950.40	10,000.00	25,950.40	
Sup. Indir. used	2,100.00	6,500.32	8,600.32	2,000.00	6,600.32	
Pkg. Mat.	1,530.00	4,000.00	5,530.00	1,015.30	4,514.70	
Total Unfin. Mdse.	$ 63,630.00	$ 112,060.72	$ 175,690.72	$ 50,665.30	$125,025.42	
Packed Fish.....	$300,140.90	$1,088,841.50	$1,388,982.40	$390,674.70	$998,307.70	
Packed Foods....	$ 60,311.00	$ 129,643.00	$ 189,954.00	$ 81,500.00	$108,454.00	
Total Cost of Goods Sold.....						$1,231,787.12
GROSS LOSS ON SALES.....						$ 73,924.34
COMMERCIAL EXPENSES:						
Storage of Goods.....				$5,316.00		
Commission of Buyers.....				2,130.00		
Cost of Selling:						
Salaries and Expenses of Salesmen...			$5,530.20			
Commissions of Salesmen.....			3,115.00	8,645.20		
Total Commercial Expenses.....						16,091.20
COMMERCIAL LOSS (forward).....						$ 90,015.54

COMMERCIAL LOSS (forwarded).....			$ 90,015.54
ADMINISTRATION AND GENERAL EXPENSE:			
Administration:			
Postage.....		$ 139.10	
Stationery.....		79.50	
Telegrams and Cables.....		42.09	
		$ 260.69	
General Expense:			
Cost of Financing:			
Interest.....	$ 9,005.50		
Discount on Sales..	1,411.00		
Collections and Exchange.....	21.50		
Bankers' Commissions	1,940.00		
	$12,378.00		
Deduct:			
Discounts Earned.	$ 6,300.40		
Brokerage on Purchases.....	3,103.00		
	$ 9,403.40		
Net Cost of Financing.....		$2,974.60	
Protection of Capital:			
Insurance Premiums (net).....		1,270.00	
Rent.....		5,800.00	
Taxes.....		2,920.00	
Total General Expense.....		12,964.60	
Total Administration and General Expense.....			13,225.29
LOSS FROM OPERATIONS (forward).....			$103,240.83

LOSS FROM OPERATIONS (forwarded).....		$103,240 83
PROFIT AND LOSS CHARGES AND CREDITS:		
Charges:		
Accounts Receivable written off.....	$ 420.10	
Claims written off.....	45.09	
Total Charges.....	$ 465.19	
Credits:		
Credit Balances of Accounts Receivable written off.....	110.20	
Net Profit and Loss Charges.....		354.99
DEFICIT FOR THE PERIOD.....		$103,595.82
A. K. KEMP, CAPITAL:		
Balance at beginning of the period.....	$280,549.82	
Adjustments:		
Credits:		
Recovery of Accounts Receivable previously written off.....	350.00	
Remainder.....	$280,899.82	
Impairment for Reserves:		
Appropriations in the Absence of Profits:		
For Depr. of Factory Bldgs..	$ 840.00	
" " " Machinery.....	200.00	
" " " Fishing Equip..	228.00	
" " " Docks and Wharves.....	60.00	
Total for Depreciation.....	$1,328.00	
For Doubtful Accounts Rec...	140.00	
Total Impairment for Reserves.....	1,468.00	
Adjusted Capital.....		279,431.82
A. K. KEMP'S CAPITAL, at December 31, 1918.....		$175,836.00

P R O B L E M N O. 3

THE BALANCE SHEET OF RAILROADS

PROBLEM NO. 3

THE BALANCE SHEET OF RAILROADS

(According to Rulings of the Interstate Commerce Commission, effective June, 1914)

Text of the Problem

The following is the Trial Balance after closing and the footnotes attached. Prepare the Balance Sheet of the Blank Railroad Company as at December 31, 1914, in accordance with the rulings of the Interstate Commerce Commission, effective June 1, 1914.

TRIAL BALANCE

(1)	Investment in Road and Equip.	$17,900,900.	Capital Stock:		
(2)	Miscellaneous Physical Prop..	684,750.	(a) Preferred....	$ 5,000,000.	
(3)	Expenditures on Leased Railway Property.....	360,000.	(b) Common.....	10,000,000.	
(4)	Sinking Funds:		Funded Debt.....	7,348,900.	(14)
	(a) For Redemp. of Equipment Certificate.	465,900.	Accounts Payable.	798,190.	(15)
	(b) For Redemp. of Mtge. Bonds.	550,000.	Loans Payable....	500,000.	
(5)	Investments:		Unmatured Dividends Declared.	2,300,000.	
	(a) Investments in Affiliated Companies....	2,355,000.	Accrued Liabilities.....	23,050.	(16)
(6)	(b) Other Investments.....	396,500.	Premiums of Funded Debt Net....	1,924.	
(7)	Cash.....	1,943,900.	Premium on Capital Stock Net..	11,085.	
(8)	Deposits and Loans	3,968,600.	Land Grants.....	300,000.	(17)
(9)	Accounts Rec.....	694,000.	Reserves.....	3,313,190.	(18)
(10)	Mat. and Supplies.	315,000.	Profit and Loss..	3,008,072.	
(11)	Interest and Rents Rec.....	360,150.			
	Working Funds in hands of General and Special Agents.....	18,410.			
	Rental paid in advance.....	1,150.			
	Insurance paid in advance.....	5,680.			
(12)	Suspense Account..	284,471.			
(13)	Securities Issued or Assumed.....	2,300,000.			
		$32,604,411.		$32,604,411.	

FOOTNOTES

(1) Credited for abandoned property subsequent to June, 1914, $75,000.

(2) As follows: Mines $150,000; Hotels and Restaurants $75,000; Timber Lands $160,000; Land and Buildings not used for operations $250,000; Materials leased to others $49,750.

(3) Expenditures represent improvements.

(4) As follows: (a) Cash $155,000; Securities of Other Companies (book value) $310,900; (b) Cash $50,000; Securities Issued by the Company (par value) $500,000.

(5) Stocks $1,550,000; Bonds $600,000; Notes $75,000; Advances $130,000.

(6) Stocks $250,000; Bonds $100,000; Advances to Non-Affiliated Companies $36,000; Miscellaneous $10,500.

(7) As follows: Deposits subject to check $1,850,000; Sight Drafts and Sight Bills of Exchange credited to remitters $75,000; Cash in Offices $18,900.

(8) As follows: Demand Loans fully secured $60,000; Demand Deposits in Banks $159,000; Time Drafts Receivable $45,800; Time Deposits in Banks $800,000; Deposits for Dividends $2,300,000; Guarantee Deposits (contracts for construction) $500,000; Deposits for Injuries $49,800; Unsecured Loans and Bills, maturity less than one year, $54,000.

(9) As follows: Traffic and Car Service balances $609,000; Due from Conductors and Agents, etc., $39,800; Collectible from U. S. Government (mail) $19,600; Individuals and Companies $25,600.

(10) As follows: Materials in Stores, cost $340,000; Depreciation $25,000.

(11) As follows: Interest $210,000; Rent $50,150; Dividends declared on stocks owned $100,000.

(12) Contains: Remainder of value of property abandoned prior to June, 1914, $201,340; Property abandoned subsequent to June, 1914, $75,000; Freight claims paid, not investigated so far as other carriers are concerned, $3,101; Estimated Depreciation on Equipment Leased $5,030.

(13) As follows: Bonds $1,000,000. of which $500,000 are pledged to secure loans; Stocks issued and reacquired by purchase, not pledged, $300,000; not sold, but signed and ready for sale, $1,000,000.

(14) As follows: Equipment Obligations $1,203,900; Mortgage Bonds $5,600,000; Miscellaneous $395,000; Long-term Non-negotiable Notes to Affiliated Companies $150,000.

(15) As follows: Traffic and Car Service balances $701,450; Audited Vouchers Unpaid $42,830; Wages Payable $50,200; Miscellaneous $3,710.

(16) As follows: Interest Accrued $11,300; Rents Accrued $4,650; Taxes Accrued $7,100.

(17) Original value of land granted in aid of construction.

(18) Unapplied balance of current charges to equalize revenues: Maintenance of Road and Equipment $20,640; Injuries $49,800; Charges to Operating Expense for Depreciation of Road $1,001,500, for Equipment $500,000; Miscellaneous Physical Property $55,000; For Redemption of Mortgage Bonds $550,000; For Redemption of Equipment Certificate $465,900; For Addition to Property $350,000; For Funded Debt now retired $260,000; Miscellaneous Reserves not specifically invested $60,350.

Discussion of Problem No. 3

The balance sheet of a railroad, under the rulings of the Interstate Commerce Commission, is probably the most interesting financial statement that has come into existence as a result of the development of accounting, and of the governmental control of public utilities.

The statement is comparative; it opposes to the values at the beginning of the year, the values at the close of the year, and shows the net changes during the year. Every item of importance is supported by a schedule which shows the exact detail of the accounts, in such a manner as to enable the Commission not only to obtain all the information that it requires, but, as well, to practically audit the accounts of the companies from year to year.

The statement attempts very successfully to place all companies on an equal footing, and to gauge their worth and their condition periodically, in order that a basis may be obtained for the maintaining or the revision of such charges as they are permitted to make for the services that they perform. The theory which underlies the statement is perhaps not readily comprehended by the student of accounting who is used to commercial forms, or who has only a very limited knowledge of railroad conditions, but the purpose is so obvious, so clear, and so well carried out, that it is impossible to study the pamphlets issued by the Interstate Commerce Commission without being impressed with the fact

that the Commission has indeed erected an accounting monument which is bound to have its effect upon the theory of accounts

The balance sheet does not pretend to use the terminology of accountants. Still, in its general construction it follows the time-honored form of the statement. It classifies the accounts in such a manner as to present, first, the assets permanently invested and on which the stockholders of the road are entitled to a fair return; these assets are called merely investments. Then it presents the current assets, that is to say, the assets which are liquid or about to become liquid, or again, are in the form of materials required for the maintenance of the properties. This, as you realize, constitutes the working fund of operating assets of the company. The next group, known as "deferred assets," represents such items as are likely to become expenditures even though at the present moment they are in a tangible form in possession of the company. The asset side of the balance sheet closes with what is called "unadjusted debits." The group includes prepayments, future charges to profit and loss, and besides, all offsets of credit accounts created in accordance with a desire of the railroad to record the existence of certain liabilities of a financial value as yet uncertain.

The credit side of the balance sheet groups the accounts as follows:

Stock
Governmental Grants
Funded Debt Unmatured
Current Liabilities
Deferred Liabilities
Unadjusted Credits
Corporate Surplus and Profit and Loss

Coming down to the detail of the accounts contained in the different groups:

A S S E T S

INVESTMENTS

The detail of this group is as follows:

Road and Equipment
Improvements on Leased Railway Property
Sinking Funds
Deposits in Lieu of Mortgaged Property Sold
Miscellaneous Physical Property
Investments in Affiliated Companies
Other Investments

Investments in Road and Equipment. This includes all property considered as road and equipment, including equipment acquired under a contract which provides that the cost shall be paid in instalments. If the equipment is paid for in securities and its actual cash value is more or less than the par value of the securities given in payment, the difference must be treated as a premium or as a discount; but under all conditions the actual cash value of the equipment must be recorded as an asset.

Improvements on Leased Railway Property. The inclusion of improvements on leased properties as an asset permanently invested, may at first sight appear to be too much at variance with commercial practice.

A manufacturing concern leasing a parcel of property and improving it for its own purpose, might carry the expenditure as a deferred charge to operations, to be written off during the

life of the lease; or it might attempt to capitalize the expenditure through a valuation of the leasehold. But, even in this latter event, leasehold values have little to do with the improvement made by the lessee. The lease, affording a certainty of possession for a certain number of years at a rate advantageous and certain, is, in reality, the only valuable part of the leasehold. But here we have a railroad which in order to carry on its purpose must lease other peoples' property. The money it expends on that property is absolutely necessary to the proper working of the road; it is invested just as effectively as if it had been consumed by property owned by the road itself, and the company is entitled to a fair return on the investment.

Sinking Funds. The sinking fund, created for the redemption of outstanding obligations, is to be shown as a permanently invested asset, only in so far as it contains cash, or securities of other companies not assumed or guaranteed by the respondent company.

Now it happens that accountants are divided into two camps in regard to the treatment of sinking funds: One camp maintains that the fund is always an asset, no matter what its purpose may be, until it has been used; when used it is still an asset, but in another form, since it has served to repay, out of profits, a debt attaching to an asset which the fund has now liberated. The other camp holds that since the fund is created to repay a debt, it should be deducted from the liability that it is intended to liquidate. The Interstate Commerce Commission stands

between the two extreme views, and holds that such securities as are issued by the respondent company and reacquired for the purpose of the fund are practically canceled, and should be shown neither as an asset nor as a liability.

Therefore, the treatment of the sinking fund on the balance sheet is twofold:

1. On the asset side: the whole fund is shown in the first short column; in the second short column is shown the amount of the respondent's securities held in the fund; the long column extends only the amount of the fund represented by cash and by securities of other companies.

2. On the liability side: the whole amount of the liability for bonds is shown in the first short column; the amount of the respondent's securities held in the sinking fund, are shown in the second short column; the long column extends only the amount of bonds which are held outside of the company.

Naturally, this expresses the theory that securities acquired for the purpose of a sinking fund must be expressed at par.

Deposits in Lieu of Mortgaged Property Sold. Whenever mortgaged property has been sold, funds are deposited with a trustee in an amount necessary to replace the sold property. So long as such property has not been replaced, its value is held in this special property account. If the company has deposited its own securities with the trustee, such securities are treated in the balance sheet precisely in the same manner as indicated above for the sinking fund.

Miscellaneous Physical Property. The item "Miscellaneous Physical Property" is separated from "Investments in Road and Equipment," and scheduled as to its components, in order to establish a line of demarcation as between the property which the road requires absolutely for the fulfillment of its purpose, and other property which is used for operations not directly connected with the transportation of passengers or freight.

Investments in Affiliated Companies. Investments in affiliated companies not subject to current settlements, or, to put it otherwise, not enforcible as current assets, are also investments of a permanent character, since they were required to build up the system into an efficient or coherent whole. They must be divided into their components, as follows:

(A) Stocks
(B) Bonds
(C) Notes
(D) Advances
(E) Miscellaneous

Other Investments. This group includes all investments in securities of, or advances to, non-affiliated companies and individuals. The components are to be expressed precisely as in the foregoing group.

CURRENT ASSETS

As to the current assets, they include the elements usually carried under that caption by any business concern, with the exception of the item "Materials and Supplies." This value is required for the current needs of the railroad, and as such is

a current asset; its value is computed at book value less the amount of depreciation which it has lost during its store life. The reason for the inclusion of such elements under the caption "Current" is obvious enough, if we consider that the meaning of "Current" as applied to the railroad is far removed from the generally accepted accounting meaning of the term.

In ordinary enterprises it is not uncommon to consider the difference between current assets and current liabilities as the measure of the concern's financial freedom. This must be because the so-called permanent or fixed assets are only thought to be adjuncts - necessary adjuncts, indeed, but incapable of interesting the financial world. So far as railroads are concerned, their purpose is so eternal, it has become such a necessary prop of our national life, it is so clear and definite to everybody's mind, that the effect of current assets upon the judgment of the investing public is practically as unimportant as that of the account "Audited Vouchers Unpaid."

DEFERRED ASSETS

The group "Deferred Assets" contains nothing which such a classification would not contain in the average commercial balance sheet, with the possible exception of "Working Fund Advances." An auditor, finding an unexpended fund of $1,000 in the hands of an officer of the company, might properly include such a fund among the current assets. For a railroad, the purpose is eternally predominant, and since the fund has been ascribed to a particular purpose it can no longer be considered as current.

The question of the importance of the purpose is so true in railroad accounting that, prior to the new rulings effective 1914, sinking funds were carried as deferred items because, consecrated to the repayment of a debt, their final application was only deferred until such time as they canceled the debt.

UNADJUSTED DEBITS

The group "Unadjusted Debits" does not differ per se from that classification as understood in general accounting; still, it contains an account which calls for comments, i. e., "Securities Issued or Assumed."

Any evidence of indebtedness, whether stocks or bonds, which have been "signed, sealed, and, when required, certified by the registrar or by the trustees under the mortgage or contract," may be shown by a public utility as a liability in the full amount of the authorized issue. It is evident that this creates two classes of stocks and bonds, one actually issued, the other only nominally issued. Of course, the actual issue has brought about the acquisition of some physical asset in some tangible form, whereas the delivery to the trustee of stocks and bonds ready for sale but unsold has brought about no more than a debit account offsetting a credit account. Still, it is possible that some of the securities only nominally issued have been pledged as collateral for loans. Therefore, the balance sheet would be misleading if it did not exhibit the potential stock and the unissued bonds, the credit value of which has been turned into actual resources. On the other hand, to show the nominally issued

securities as an asset would be equivalent to capitalizing possibilities of the future or crediting opportunities of the present. Hence, the Commission has prescribed that the debits be shown in the short column of the balance sheet under the caption "Unadjusted Debits," and, instead of being extended in the long column, that they be deducted from the inflated liability, in order that only the actually outstanding indebtedness may be extended on the liability side.

LIABILITIES

The liability side of the balance sheet presents quite a few interesting points.

CAPITAL STOCK

Capital stock, for a railroad operating under the control of the Commission, includes not only stock actually issued (expressed at par), but, as well, the amount of net premiums received on the sale of capital stock, if the account with premiums and discounts ends in a credit balance. Besides, if a railroad has acquired the property of another road through the purchase of the vendee's stock, and has agreed to issue in payment a certain amount of its own stock, but has not as yet done so, the respondent must show the amount of the contract as capital stock instead of as another form of contractual indebtedness.

The carrying of premiums on capital stock as items of income finding their way into the surplus through a series of periods, or in a lump sum, is decidedly objectionable as an eco-

nomic proposition. If a company is compelled to sell its stock at a premium, it is because its credit and its prosperity are established. If it receives $120 for a share of stock the par value of which is $100, it should be compelled to show a liability to the investor in the full amount received thereon, $100 being for par value and the balance for what cannot be expressed as par. The $20 of premium is a capital contribution just as much as the $100, and it is almost childish to consider that the $20 abstracted from a stockholder coming in at the eleventh hour must be divided among the stockholders under the form of surplus earned.

LAND GRANTS IN AID OF CONSTRUCTION

A business concern receiving an unrestricted grant of land, money, stock, or any other financial commodity, from individuals or municipalities, can do with the benefit received whatever it wishes. It can send it to the credit of the profit and loss, or of the surplus, and eventually distribute it to those entitled thereto. A public utility operating under the control of the Interstate Commerce Commission must carry all grants in aid of construction as assets, under the caption "Investments in Road and Equipment," and the benefit as a liability directly under the capital stock. The reason for this is obvious; if the grant has been made for the purposes of the road, its money value has gone into the road, no matter whence it came; and unless it is considered as an investment by the recipient, other roads not so favorably placed will show a greater investment, which would

disturb comparisons for the purpose of establishing equitable rates. On the other hand, if the grant is an invested asset, its value should not be distributed to the stockholders nor permitted to affect the surplus.

FUNDED DEBT UNMATURED

As defined by the Interstate Commerce Commission, funded debit is any debt the maturity of which extends over a period of one year. Naturally, this includes every indebtedness for the redemption of which a fund has been created, and any debt for the redemption of which assets are to be found included in the general fund of assets. In other words, funded debt is what accountants generally refer to as capital liabilities to outsiders. The railroad balance sheet form refers to it as long-term debt.

For public utilities, the account includes, not only the company's own securities, but, as well, the indebtedness of other companies, the payment of which has been assumed by the respondent company. For presentation in schedule form, the funded debt of public utilities must be classified according to the nature of the instruments; but in the balance sheet the gross amount is shown short, and there is deducted therefrom the respondent's holdings of his own securities held in the sinking funds.

CURRENT LIABILITIES

There is nothing extraordinary in the nomenclature of current liabilities; they are precisely what they would be to any business concern.

DEFERRED LIABILITIES

This group includes the credit accounts which are contras to the funds carried as deferred assets and include all cash and securities in the hands of trustees or managers of insurance, employees' pensions, savings, relief, hospital, and other benefits. A separate account must be kept for each fund and for each liability for the fund.

UNADJUSTED CREDITS

The group containing the unadjusted credits is especially interesting to the reader of this book, in the light of what has been said in previous lectures concerning the status of reserves.

When stating their income account, public utilities must include depreciation as cost of the particular operations to which the depreciated physical property serves as a basis. This means that the depreciation of the roadway, bridges, culverts, fuel stations, telegraph and telephone lines, etc., must be carried as cost of maintenance of way and structures; whereas the depreciation of locomotives, cars, shop machinery, etc., is charged to Maintenance of Equipment, etc.

As you notice, the provisions for depreciation are considered as actual, and, having entered cost, constitute a loss suffered by the physical assets. Hence, to the public utilities the credit side of the provision for depreciation is not a reserve at all; it is only the measure of the depreciation loss accumulated to date, or, to state it in the language of the Inter-

state Commerce Commission, an "Unadjusted Credit," the adjustment of which will not take place until the accumulation equals the asset.

The group "Unadjusted Credits" also includes operating reserves, which are credit accounts created as contras to charges made monthly to operating accounts, to represent losses not as yet incurred but bound to be incurred during the year in an amount which experience has indicated. Such an item would be "Injuries to Persons." The reserve will positively be lost, by charges thereto when payments for injuries are made.

Any other reserve created by appropriation of earnings must be carried as a subdivision of the "Corporate Surplus."

It is not possible to go more extensively at this point into the study of the railroad balance sheet, for, after all, even classroom lectures must come to an end. I suggest, however, that a student of accounting, truly in love with the science, will not fail to apply to the Washington Government Printing Office for copies of the classifications prescribed by the Interstate Commerce Commission, both for the balance sheet and for the income account. Outside of the fact that no up-to-date accountant can afford to be ignorant of such matters, the mere reading of the pamphlets will do more for the student than months of badly directed effort.

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Solution to Problem No. 3

COMPARATIVE GENERAL BALANCE SHEET

Balance at Beginning of Year	ASSET SIDE	Total Book Assets at Close of Year	Respondent's Own Issues Included in	Balance at Close of Year	Net Change During Year
	INVESTMENTS				
	Investment in Road and Equipment			$17,900,300.00	
	Improvements on Leased Railway Property			360,000.00	
	Sinking Funds	$1,015,900.00	$500,000.00	515,900.00	
	Deposits in Lieu of Mortgaged Property Sold			---	
	Miscellaneous Physical Property			684,750.00	
	Investments in Affiliated Companies:				
	(A) Stocks			1,550,000.00	
	(B) Bonds			800,000.00	
	(C) Notes			75,000.00	
	(D) Advances			130,000.00	
	Other Investments:				
	(A) Stocks			250,000.00	
	(B) Bonds			100,000.00	
	(C) Notes			---	
	(D) Advances			36,000.00	
	(E) Miscellaneous			10,500.00	
	Total Investments			$22,213,050.00	
	CURRENT ASSETS				
	Cash			$ 1,943,900.00	
	Demand Loans and Deposits			219,000.00	
	Time Drafts and Deposits			845,800.00	
	Special Deposits			2,840,800.00	
	Loans and Bills Receivable			54,000.00	
	Traffic and Car Service Balances Receivable			609,000.00	
	Net Balance Receivable from Agents and Conductors			32,900.00	
	Miscellaneous Accounts Receivable			45,200.00	
	Material and Supplies			315,000.00	
	Interest and Dividends Receivable			310,000.00	
	Rents Receivable			50,150.00	
	Other Current Assets			---	
	Total Current Assets			$ 7,281,650.00	
	DEFERRED ASSETS	Total Book Assets At Close of Year	Respondent's Own Issues Included in		
	Working Fund Advances			$ 18,410.00	
	Insurance and Other Funds			--	
	Other Deferred Assets			--	
	Total Deferred Assets			$ 18,410.00	
	UNADJUSTED DEBITS				
	Rents and Insurance Premiums Paid in Advance			$ 6,830.00	
	Discount on Capital Stock			---	
	Discount on Funded Debt			---	
	Property Abandoned Chargeable to Operating Expenses			276,340.00	
	Other Unadjusted Debits			8,131.00	
		Par Values of Holdings at Close of Year			
	Securities Issued or Assumed Unpledged	$1,800,000.00			
	Securities Issued or Assumed Pledged	500,000.00			
	Total Unadjusted Debits			$ 291,301.00	
	GRAND TOTAL			$29,804,411.00	

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COMPARATIVE GENERAL BALANCE SHEET - (Continued)

Balance at Beginning of Year	LIABILITY SIDE	Total Book Liability at Close of Year	Respondent's Holdings Included in	Balance at Close of Year	Net Change During Year
	STOCK				
	Capital Stock	$15,000,000.00	$1,300,000.00	$13,700,000.00	
	Stock Liability for Conversion			--- --- --	
	Premium on Capital Stock			11,085.00	
	Total Stock			$13,711,085.00	
	GOVERNMENTAL GRANTS				
	Grants in Aid of Construction			$ 300,000.00	
	LONG-TERM DEBT	Total Book Liability at Close of Year	Respondent's Holdings Included in		
	Funded Debt Unmatured	$ 7,198,900.00	$1,500,000.00	$ 5,698,900.00	
	Receiver's Certificates				
	Non-Negotiable Debt to Affiliated Companies:				
	(A) Notes			150,000.00	
	(B) Open Accounts			--- --- --	
	Total Long-Term Debt			$ 5,848,900.00	
	CURRENT LIABILITIES				
	Loans and Bills Payable			$ 500,000.00	
	Traffic and Car-Service Balances Payable			701,450.00	
	Audited Accounts and Wages Payable			93,030.00	
	Miscellaneous Accounts Payable			3,710.00	
	Interest Matured Unpaid			--- --- --	
	Dividends Matured Unpaid			--- --- --	
	Funded Debt Matured Unpaid			--- --- --	
	Unmatured Dividends Declared			2,300,000.00	
	" Interest Accrued			11,300.00	
	" Rents Accrued			4,650.00	
	Other Current Liabilities			--- --- --	
	Total Current Liabilities			$ 3,614,140.00	
	DEFERRED LIABILITIES				
	Liability for Provident Funds			$ --- --- --	
	Other Deferred Liabilities			--- --- --	
	Total Deferred Liabilities			$ --- --- --	
	UNADJUSTED CREDITS				
	Tax Liability			$ 7,100.00	
	Premium on Funded Debt			1,924.00	
	Insurance and Casualty Reserves			--- --- --	
	Operating Reserves			70,440.00	
	Accrued Depreciation - Road			1,001,500.00	
	" " - Equipment			500,000.00	
	" " - Miscellaneous Physical Property			55,000.00	
	Other Unadjusted Credits			--- --- --	
	Total Unadjusted Credits			$ 1,635,964.00	
	CORPORATE SURPLUS				
	Additions to Property through Income and Surplus			$ 350,000.00	
	Funded Debt Retired through Income and Surplus			260,000.00	
	Sinking Fund Reserves			1,015,900.00	
	Miscellaneous Fund Reserves			--- --- --	
	Appropriated Surplus Not Specifically Invested			60,350.00	
	Total Appropriated Surplus			$ 1,686,250.00	
	Profit and Loss Balance			3,008,072.00	
	Total Corporate Surplus			$ 4,694,322.00	
	GRAND TOTAL			$29,804,411.00	

PROBLEM NO. 4

THE BALANCE SHEET OF STOCK-BROKERS

PROBLEM NO. 4

THE BALANCE SHEET OF STOCK-BROKERS

(Adapted from the New York C.P.A. Examination)

Text of the Problem

The trial balance of a firm of stock-brokers doing business under the name of Adams & Jones, shows at December 31, 1918:

TRIAL BALANCE

Customers Long.....	$ 9,500,000.00	Customers Short.....	$ 160,000.00
Cash.....	50,000.00	Stocks Loaned.....	480,000.00
Stocks Borrowed....	110,000.00	Sundry Accounts Payable.....	3,800.00
Investment in Bonds	490,000.00	Loans on Bonds.....	400,000.00
Furniture and Fixtures.....	3,600.00	Loans on Stocks.....	7,800,000.00
Stock Exchange Seat	54,000.00	Interest - Net.....	33,400.00
Stamps.....	1,500.00	Commissions.....	60,000.00
Expenses.....	51,000.00	Adams.....	592,900.00
		Jones.....	730,000.00
	$10,260,100.00		$10,260,100.00

The location of the securities and their market value at December 31, 1918, are as follows:

Bonds Owned.....	$ 500,000.00
Stocks Borrowed.....	108,000.00
Stocks Purchased for Dealers:	
Loaned to Other Brokers.....	500,000.00
In Transfer.....	130,000.00
On Hand.....	384,000.00
Pledged to Banks.....	9,360,000.00

REQUIRED: The financial statement of the firm in technical accounting form.

Discussion of Problem No. 4

The balance sheet of the broker, if built up from the balances of ledger accounts, is expressive of nothing in particular. The largest asset is that represented by the accounts due by customers, and while in reality these accounts are secured by the pledge to the broker of the very securities purchased by him for them, that vital truth is not apparent on the face of an ordinary balance sheet. To the layman, at least, a huge sum of money due by customers appears extraordinary and may raise the suspicion that it may not be collectible in full. On the other hand, the amount supposedly due to the customers short would be considerably reduced if the short transactions which gave rise to the accounts were completed. All that would be due to the customer would be his profit on the short sale, or, in the event of an upward fluctuation of the stocks sold short, the customer might actually owe the broker the amount of the loss which the completed transaction would reveal.

The account "stocks borrowed" has a double meaning which the ordinary balance sheet would never disclose. The account means that, in order to carry on a short sale for the account of his customers, the broker had to take cash equivalent to the market value of the stocks, deposit it with another broker whose customers were long of that particular stock, and receive from that broker enough stock to accomplish the delivery. When the time has come to cover the short sale, the broker re-

ceives from the customer short an order to buy. Having bought, he receives the stock, returns it to the broker from whom he borrowed the original parcel, and receives back the full amount of money which he had pledged with that broker. Hence, if we face squarely the short transaction involved in the problem at issue, we will see that the firm of Adams & Jones will receive $110,000 in cash from other brokers upon return to them of the stocks borrowed from them. But in order to be in a position to do this, they will have to purchase the same quantity of stock, at a price which will be $2,000 less than the amount at which the stock sold originally. That profit of $2,000 belongs to the customers short, and, added to their margin, will be the only amount payable to them by the broker. In this case it will not be $160,000, but it will be $52,000. Enough has been said to show you how inadequate and inexpressive the ordinary balance sheet of a broker would be.

If for no other reason than the question of bank credits, it is essential that something be presented which will give a better understanding of the values involved.

The broker operates under the laws of agency. He is bound to carry out strictly the orders of his customers for purchases or sales, and, as a compensation, he receives a commission which is the same as all other brokers receive. Unless customers pay him in advance the whole purchase price of the securities which they desire to acquire, he is compelled to make them advances. As an agent, whenever he has made advances to

his principals, and the advances have not been repaid to him, he is at liberty to take such quantity of the goods of the principals as, pledged at their obtainable value, will refund him the cash disbursed. And if the agent makes a formal demand to the principal, and the latter is unable to pay, the agent may let the pledgee sell the pledge; in that event, the agent owes the principal the difference between the proceeds of the sale and the amount of the advance; in the event that the proceeds of the sale are not sufficient to cover the agent's advances, the principal owes the balance.

Technically, the demand for the repayment of the advances is made by the stock-broker, simultaneously with the advances; hence,at any time that he makes his balance sheet he can assume that he is in a position to close the accounts of his customers. To do this, he would have to credit their accounts with the market value of the securities of which they are long, and debit their accounts with the market value of the securities of which they are short. This, of course, means that the securities themselves have now become his property, at least to the extent allowed by the law of pledges. Hence, through this technical substitution, and in the event that the closing market value is greater than the purchase value of the securities long, and again, lower than the sales value of the securities short, instead of having an account receivable from the customers long, he owes them money, and he owes the customers short a much smaller amount of money than their accounts origi-

nally indicated. If the market values are the other way, his customers long owe him a greatly reduced amount of money, equivalent to their losses, and the customers short owe him money - also for their losses. In any event, the securities purchased for customers long are technically his own, while in the case of the customers short he must show as receivable the money deposited with the broker from whom he borrowed short stock, and he must show as payable the amount of money representing the now market value of the securities to be purchased for cover.

I have practically expressed to you the theory of the technical balance sheet of the broker, and reference to the solution will show you how clearly the values involved in the business of the broker are exhibited by the technical balance sheet. I have no idea whatever that I have made perfectly clear to you the whole business of the stock-broker; my object was to present to you the different types of balance sheets, and to point out, as I went along, the difficulty of the accountant's task. He must forever strive to apply the principles of the science which he calls his own, to conditions which change according to types of organization, fiscal or legal requirements, and, above all, purpose.

Following the balance sheet and the statement of profits which fulfill the requirements of the problem, I have constructed for you what is often referred to as a "Combined Balance Sheet and Equity Statement."

It is, as you will notice, perfectly clear to such readers as are familiar with stock brokerage, and ought to be just as

lucid to any accountant or banker. Take, for instance, the account "Bonds Securing Loans." Under the caption "Ledger Balances," it reads:

The firm owns bonds in the amount of $490,000. But it has pledged some of these bonds to secure a loan of $400,000; the market value of the bonds owned is $500,000; hence, assuming liquidation, the bankers would sell the bonds and turn over to the brokers their equity of $100,000.

Passing now to the account "Stocks Securing Loans," the reading of the account depends upon a reference to the account "Customers Long." Taking the two accounts in conjunction, we read as follows:

To secure accounts aggregating $9,500,000, the customers are long of stocks worth at market value $10,374,000. Hence, assuming liquidation, the customers would have an equity of $874,000 in their accounts. On the other hand, to carry the customers on margin, the brokers have borrowed $7,800,000 from the banks, and pledged therefor customers' securities worth at market value $9,360,000. Hence, assuming liquidation, the banks would sell the pledge to satisfy their loan of $7,800,000, and return to the brokers their equity of $1,560,000. Such securities of the customers as have not been pledged to the banks are asset equities of the brokers.

It is undeniable that the statement of equities is an excellent presentation of the financial status for purposes of credit. When not combined with the balance sheet, it is often

used in the form of an equity table, or, to give it another name, as a "Statement of Margins." Such a statement acts admirably for the purpose of internal control. To illustrate:

C. J. Jones owes $10,000; he is long 100 shares of Union Pacific, the market value of which is $17,000, hence, he has a credit equity of $7,000, allowing for a downward fluctuation of 70 points per share in the market value of his stock before his account becomes dangerous to handle. On the other hand, A. B. David owes $15,000 on an account similar in every respect; his margin of 10 points per share is far too close to the limit to be especially attractive. As to form, the "Statement of Margins" or "Equity Table" is constructed on lines similar in every respect to those of the "Combined Balance Sheet and Statement of Equities" presented in the solution.

Solution of Problem No. 4

GENERAL BALANCE SHEET OF ADAMS AND JONES, STOCK-BROKERS

At December 31, 1918

Stock Exchange Seat		$ 54,000.00	Loans Payable:		
Furniture and Fixtures		3,600.00	Secured by Pledge of Bonds	$ 400,000.00	
Transfer Stamps		1,500.00	Secured by Pledge of Stocks	7,800,000.00	
Investment in Bonds (Firm's Holdings)		500,000.00	Total		$ 8,200,000.00
Securities Purchased for Dealers:			Accounts Payable:		
Pledged to Banks - Market Value	$9,360,000.00		To Customers Long	$ 874,000.00	
Pledged to Brokers - Market Value	500,000.00		" " Short	52,000.00	
In Transfer - Market Value	130,000.00		" Brokers upon return by them of Stocks Loaned	480,000.00	
Unpledged	384,000.00		" Brokers upon purchase of Stocks Sold Short	108,000.00	
			Sundry Accounts Payable	3,800.00	
Total Securities Purchased for Dealers		10,374,000.00	Total Accounts Payable		1,517,800.00
Cash		50,000.00	Capital of Partners:		
Receivable from Brokers upon return to them of Stocks Borrowed		110,000.00	Adams	$ 619,100.00	
			Jones	756,200.00	
			Total		1,375,300.00
TOTAL		$11,093,100.00	TOTAL		$11,093,100.00

PROFIT AND LOSS ACCOUNT

Expenses		$ 51,000.00	Interest - Net	$ 33,400.00
Net Profit:			Commissions	60,000.00
Adams - 50%	$ 26,200.00		Gain on Excess of Market Value of Bonds over Book Value	10,000.00
Jones - 50%	26,200.00	52,400.00		
		$ 103,400.00		$ 103,400.00

COMBINED BALANCE SHEET AND STATEMENT OF EQUITIES

At December 31, 1918

ACCOUNT	LEDGER BALANCES		LONG		SHORT		MARKET		EQUITIES	
	Assets	Liabilities	Shares	Descrip.	Shares	Descrip.	Price	Value	Assets	Liabilities
Stock Exchange Seat.	$ 54,000.	$						$	$ 54,000.	$
Furniture and Fixtures.....	3,600.								3,600.	
Transfer Stamps.....	1,500.								1,500.	
Customers Long.....	9,500,000.		Unknown	Unknown			Unknown	10,374,000.		874,000.
Customers Short.....		160,000.			Unknown	Unknown	"	108,000.		52,000.
Stocks Borrowed.....	110,000.				"	"	"	108,000.	110,000.	108,000.
Cash.....	50,000.								50,000.	
Bonds Securing Loans	490,000.	400,000.		"			"	500,000.	100,000.	
Stocks Securing Loans		7,800,000.	"	"			"	9,360,000.	1,560,000.	
Due on Return of Stocks Loaned.....		480,000.	"	"			"	500,000.	20,000.	
Stocks in Transfer..			"	"			"	130,000.	130,000.	
Stocks on Hand.....			"	"			"	384,000.	384,000.	
Accounts Payable....		3,800.								3,800.
Adams.....		614,100.			Excess of Asset Equities over Liability Equities, i.e., Net Worth of the Firm.....					1,375,300.
Jones.....		751,200.								
	$10,209,100.	$10,209,100.							$2,413,100.	$2,413,100.

Note for the Student: Difference between balance sheet and this statement, due to the increase of market value of bonds, not in the ledger accounts.

P R O B L E M N O. 5

THE PRESENTATION OF COST RESULTS

PROBLEM NO. 5

THE PRESENTATION OF COST RESULTS

Text of the Problem

The Knickerbocker Manufacturing Company, incorporated with a capital stock of $113,500, of which $1,500 is common, has a funded debt of $71,800, represented by a mortgage on land, building, and equipment, the value of the asset being $156,365.18. The composition of the surplus at January 1, 1918, was as follows:

(1) APPROPRIATED SURPLUS:	
(a) For Depreciation not chargeable to cost.....	$ 23,513.67
(b) For possible Losses of Accounts Receivable..	8,074.39
(c) For Federal Income Taxes.....	34,130.00
Total Appropriated.....	$ 65,718.06
(2) FREE SURPLUS.....	574,382.71
	$640,100.77

The Appropriated Surplus at December 31, 1918, was as follows:

(a) For Depreciation not chargeable to cost.....	$ 27,510.81
(b) For possible Losses of Accounts Receivable	4,085.05
(c) For Federal Income Taxes.....	32,180.00
Total Appropriated.....	$ 63,775.86

The Capital Assets not previously mentioned were, at December 31, 1918:

Power Plant, Machinery & Tools (Depr. Deducted)	$ 91,687.84
Transportation Equipment.....	28,535.67
Furniture and Fixtures.....	9,700.24
Trade-Marks and Patterns.....	5,066.06

The depreciation of machinery, tools, etc., previously deducted, amounts to $38,036.99

The Operating Assets other than merchandise manufactured or in process, were:

Cash	$ 42,392.58
Accounts Receivable	163,240.43
Liberty Bonds	7,175.00
Prepayments:	
Insurance	4,893.17
Creditors' Bills Discounted in advance of receipt of goods not included in inventory	4,705.38
Scrap Material and Empty Containers	8,833.65
Manufacturing Materials and Supplies	462,809.52
Miscellaneous Materials and Supplies	28,254.50

The Operating Liabilities were, at December 31, 1918:

Notes and Loans Payable	$265,000.00
Creditors' Accounts	36,480.51
Salaries and Wages Accrued	15,011.82
Commissions of Salesmen Accrued	6,622.20
Dividends Payable on Preferred Stock	2,240.00

The recapitulation of the departmental cost sheets recording the operations of the year shows:

D E B I T S

	Initial Inventory	Materials	Direct Labor	Overhead	Total	Cost Transfer by Other Departments	TOTAL
Dept. No. 1	$	$ 372,996.65	$ 4,300.22	$ 21,113.23	$ 398,410.10	$ 2,316.66	$ 400,726.76
2	2,009.26	69,776.09	6,035.97	15,837.79	93,659.11		93,659.11
3		55,079.63	10,176.54	11,352.32	76,608.49	97,106.43	173,714.92
4	57.97	20,500.69	3,867.97	6,839.88	31,266.51	68,577.99	99,844.50
5		51,077.42	6,863.69	7,030.83	64,971.94	3,300.19	68,272.13
6	8,532.36	64,990.44	16,197.53	20,025.20	109,745.53	214,111.69	323,857.22
7	13,495.98	485,459.19	45,622.98	85,739.61	630,317.76	485,915.04	1,116,232.80
	$24,095.57	$1,119,880.11	$93,064.90	$167,938.86	$1,404,979.44	$871,328.00	$2,276,307.44

C R E D I T S

	No. 1	No. 2	No. 3	No. 4	No. 5	No. 6	No. 7	Finished Goods	Inventory	Expense Account	TOTAL
Dept. No. 1 transfers to	$	$	$ 305.86	$3,300.19	$ 96,231.66	$298,572.39	$		$ 2,316.66	$	$ 400,726.76
2					93,659.11						93,659.11
3						171,736.61			1,967.36	10.95	173,714.92
4			97,106.43						2,738.07		99,844.50
5				68,272.13							68,272.13
6						15,606.04		282,466.37	16,011.94	9,772.87	323,857.22
7	$2,316.66	--- --			24,220.92			1,077,227.32	12,467.90		1,116,232.80
	$2,316.66	$--- --	$97,106.43	$68,577.99	$3,300.19	$214,111.69	$485,915.04	$1,359,693.69	$35,501.93	$9,783.82	$2,276,307.44

The general ledger contains a quantity of accounts with overhead components. These are closed monthly to general overhead accounts, one for each department. The analysis of these accounts reveals the following:

	Superintendence	Indirect Pay-Roll	Depr. of Machinery, Tools, etc.	Power	Heating, Lighting, etc.	Inward Freight, etc.	Distribution Expense	Miscellaneous including Repairs	TOTAL
Dept. No. 1	$ 4,086.15	$ 2,578.13	$ 871.21	$6,426.89	$ 656.40	$ 4,100.00	$ 615.20	$ 1,779.25	$ 21,113.23
2	5,915.80	6,399.79	828.43	813.53	492.55	615.20	109.03	663.46	15,837.79
3	4,944.75	4,252.15	85.99	311.78	196.32	801.50	72.84	686.99	11,352.32
4	4,098.10	1,551.99	312.61	662.37	70.61	115.00	10.00	19.20	6,839.88
5	1,441.18	1,239.52	90.37		71.87	1,815.25	1,112.85	1,259.79	7,030.83
6	9,353.78	2,698.79	893.42	982.74	1,108.95	2,110.11	1,530.20	1,347.21	20,025.20
7	27,624.91	5,484.14	1,899.65	691.73	5,308.72	19,010.30	21,381.01	4,339.15	85,739.61
	$57,464.67	$24,204.51	$4,981.68	$9,889.04	$7,905.42	$28,567.36	$24,831.13	$10,095.05	$167,938.86

The shipping records show:

Finished Goods on hand January 1, 1918	$ 118,504.08
Received from Manufacturing Departments	1,359,693.69
Goods Shipped to Customers (at cost)	1,277,962.83
Salesmen's Samples, out of stock	14,172.74

This does not take into consideration an increase of $509.15 in the value of the inventory of the scrap material; the shipping department has no knowledge of such condition. This increase was made up of Department No. 6, $209.15; Department No. 7, $300.00.

The ledger balances of the accounts not previously mentioned in the text are as follows:

Warehouse Charges - pending distribution	$ 17,000.13	$
Traveling Expense of Shipping Manager.	656.42	
Salaries and Wages - Shipping Department	25,843.35	
Shipping Materials Consumed	4,794.28	
Miscellaneous Shipping Expenses	11,939.25	
Returned Sales	4,331.89	
Sales		2,136,392.87
Allowances to Customers (defective goods)	141.02	
Cost of Distribution to Jobbers, etc..	173,346.46	
Selling Salaries	23,128.75	
Commissions on Sales	185,407.34	
Advertising	108,264.43	
Miscellaneous Selling Expense	10,047.33	
General Office Salaries	10,000.00	
Officers' Salaries	60,000.00	
All other Administration Expense	12,323.50	
Discounts on Creditors' Accounts		20,718.64
Discounts Lost - Customers'	37,352.14	
Interest and Discount - Financing	25,296.53	
Local Taxes, Licenses, Fees, etc	10,000.00	
Workingmen's Compensation Premiums	3,400.00	
Breakage of Empty Containers	1,554.38	
Insurance Premiums, fire protection	5,630.00	
Sales of Prior Periods, returned in this period	20,011.75	
Freight on Sales of Prior Periods, returned in this period	2,636.71	
Provision for Taxes on Income of 1918.	32,180.00	
Provision for Depreciation, not chargeable to cost	3,997.14	
Provision for Losses of Accounts Receivable	2,229.37	
Insurance Premiums Refunded (mutual plan) Prior Periods		1,727.06

Dividends on preferred stock were declared during the year in the amount of $8,395.51; accounts receivable, compensated by reserve, were lost in the amount of $1,285.67; the reserve for accounts receivable was further reduced in the amount

of $4,933.04 because accounts provided for had been collected to the extent stated. The goods sold in prior periods and returned in this period have deteriorated through frost and exposure; they can neither be resold nor rehabilitated. Their original cost was $14,351.09.

REQUIRED:

(a) The General Balance Sheet of the company at December 31, 1918 - in double form.

(b) A Summary Statement of Income properly supported by schedules.

(c) The reconciliation of the Surplus.

Discussion of Problem No. 5

This problem illustrates the presentation of the results of cost accounts. The system of cost-finding used by the Knickerbocker Manufacturing Company is of the simplest; and, as it appears to be convenient, we may try to rebuild it in its main features from the analytical data furnished by the text of the problem.

Apparently the concern manufactures only two general classes of merchandise, one produced by Department No. 6, and the other by Department No. 7. Each class may, and probably does, contain several lines of goods, perhaps differing in quality, cost, sale price, quantities packed in boxes, etc., etc. But it is evident that, whatever the goods manufactured may be, they all have their source in Department No. 1.

We might imagine that the goods produced are chemicals which are sold in two forms, say, liquid and solid. Under this assumption, Department No. 1 might be the laboratory, where all batches of goods are started; this is evidenced by the analysis of the cost sheets given in the text. Out of a total cost of $400,726.76 which Department No. 1 has accumulated, there is only $2,316.66 coming from other departments. As this amount remains in the inventory in process, it must represent a "send-back" to the laboratory of some goods which were unsatisfactory, and have to be partially remade. Indeed, you will see that the goods were returned by one of the finishing departments, viz.:No. 7. As to the departmental cost proper of Department No. 1, it has been

transferred in full to Departments Nos. 6 and 7, with the exception of $305.86 which has been charged to Department No. 4, and $3,300.19 charged to Department No. 5.

While this does not account for the functions of Departments Nos. 2, 3, 4, and 5, it does earmark Departments Nos. 6 and 7 as being finishing departments.

Department No. 2 receives no transfer of cost from other departments; therefore its product is of a special nature required by the finishing departments. We may say that the department manufactures tin containers for the packing of chemicals in solid form. Under this assumption, Department No. 6, which has received in toto the cost accumulated by Department No 2, would be the finishing department for solid chemicals, while No. 7 would be the finishing department for liquid chemicals. Therefore, Department No. 3 might be said to manufacture stoppers for the containers used by Department No. 7. Stoppers may not be the goods actually manufactured but they will serve our purpose just as well. As to Department No. 4, since it transfers to No. 3 the product that it manufactures, this product must be a part of the product of No. 3. The same is true of Department No. 5, since the conditions are similar.

To summarize our analysis of the system so far:

Dept. No. 1.	Chemical Laboratory	
2.	Tin Boxes and Cans	
3.		Finishing stopper or producing part of stopper.
4.	Stoppers for Containers	
5.		
6.	Solid Chemicals - Finishing	
7.	Liquid Chemicals - Finishing	

This being the general outline of the factory organization, let us try to obtain some information in regard to the system in use.

The pay-roll is departmentalized, and subdivided by departments as between labor directly chargeable to orders, and labor the benefit of which applies to all the orders in each department.

As we are given no indication as to the material coming from stores, it is probable, or at all events possible, that the material is generally distributed when received to the departments using it; this means that instead of being charged with average cost of material as per store records, the goods are charged with actual cost on the basis of invoices. Each bale, barrel, box, etc., of material placed on the departmental floor bears distinctive marks, a distinct invoice number and invoice price. So long as a bale, box, etc., is not exhausted, the goods are charged with the cost as per invoice. When another packing container is opened, the prices indicated on its invoice prevail, the same procedure being followed from invoice to invoice.

The monthly overhead, as obtained from the general ledger, is distributed by departments on a basis not given by the problem but in all certainty expressive of the actuality of the departmental conditions. At the end of the month, each department receives notice of the burden to be absorbed by its product, and the sum thereof is prorated over the units of manu-

facture, or, rather, first over the total units of the orders put in process, and then over the grosses, dozens, etc., comprised in the total of the order. It follows that the actual cost of the product of one month is not known until the end of the month; but as there is no indication that the concern is bidding for orders and needs to know the probable cost of production before establishing the sale price, the above method of distributing overhead is probably satisfactory. It has the advantage of being actual and of affording an exact basis for comparison in the event that it fluctuates violently, one way or another. Decreased unit cost may be due to a greater production of units or to a reduction of expenses; increased unit cost may be due to a smaller production of units or to an increase of expenses, both of which must be accounted for.

The departmental cost sheets are provided with a number of columns for debits and credits. Their form might follow the general outline of the following illustration:

Date
2/5
2/5

Date	
9	
9	

DEBIT SIDE — DEPARTMENT NO. 6 — MONTH OF JANUARY, 1918

TRANSFERS FROM OTHER DEPARTMENTS						DEPARTMENTAL COST							SUMMARY			
Date	Order No.	Unit	Qty.	Unit Cost	Amount	Date	Order No.	Qty. Ordered	Material	Labor	Over-head	Total	Order No.	Qty.	Total Cost	Unit Cost
2/5 2/5	1-6-410 2-6-410	Tin Boxes - gross	2,500 100	100-$20.60 4.90	$515.00 490.00	2/9 9	6-410	100 gross	$190.00	$1,045.00	$612.00	$1,847.00	6-410	99¼	$1,617.00	$16.21

CREDIT SIDE — DEPARTMENT NO. 6 — MONTH OF JANUARY, 1918

TRANSFERS TO OTHER DEPARTMENTS							TRANSFERS TO FINISHED GOODS OR OTHER ACCOUNTS						LOSSES AND SHRINKAGES INCLUDED IN COST				INVENTORY OF GOODS IN PROCESS				
Date	Order No.	Particulars	Unit	Qty.	Unit Cost	Amount	Date	Order No.	Unit	Qty.	Unit Cost	Amount	Particulars	Qty.	Unit Cost	Amount	Order No.	Unit	Qty.	Cost	Amount
9 9	6-410 6-410						9	6-410	gross	99¼	$16.21	$1,617.00	F. G.	⅛ gross 10 lbs.	$ 4.90 20.60	$1.22 2.06					

The cost sheets illustrated in the foregoing are capable of producing an inventory in process which is readily priced. On the other hand, the shipping department keeps an accurate record of the transfer of finished goods by the finishing departments, and the entries in this record can be accurately checked from the cost sheets of Departments Nos. 6 and 7; further, as the shipping department keeps a thorough record of all goods shipped as sold, the book inventory of finished goods is practically permanent, both as to quantities and prices.

Briefly described as it has been in the preceding remarks, the cost system in use by the Knickerbocker Manufacturing Company appears to be eminently suitable to the requirements.

As to the presentation of the results of the accounting period in statement form, we must discuss the theories which are involved.

The double form balance sheet required by the problem is a clear and lucid statement, probably the most satisfactory type of a balance sheet. It divides the enterprise into its natural elements, viz., financial department and operating department.

In the problem which we are discussing, it happens that all the liquid assets, as well as all the other operating assets, are shown to have been entrusted to the operating department. This, however, is far from being necessary, and it might very well happen that a certain cash fund would be retained by the financial department for its own use. In any event, the

financial department is entirely dissociated from the trading or manufacturing operations of any period. It stands very much in the same relation to the operating department as certain types of holding companies stand in relation to the operating companies which they control through ownership of capital stock and of the equipment used in operations.

The operating department begins with a net sum of liquid assets, and acquires working and trading assets either by the sacrifice of liquid funds or through the incurrence of short term obligations known as current debt or operating debt. It then manufactures and sells, or simply buys and sells, pays its own expenses, and returns at the end of the period a profit which is measured by the extent of the net increase of the fund entrusted to it.

This increase of the net fund may be withdrawn by the financial department, in the form of cash, either to acquire new capital assets through the reinvestment of operating profits, or for the purpose of paying out the profits to the stockholders; or again, it may be allowed to remain in the hands of the operators in order that operations may be extended.

The problem requires the establishment of a summary statement of income and profit and loss. This is due to the fact that, generally speaking, the average statement of operations is too encumbered by detail to make it possible for the reader's eye to visualize the important facts. The first thing that should attract the attention of the executive who reads the

statement is the main classes of facts; if he is desirous of obtaining greater detail, he will be glad to find such detail classified by proper schedules which, standing by themselves, will place greater emphasis upon the facts which they recite.

The statement of income should end with the presentation of the profit and loss charges which have reduced the operating profits to the net profits. These net profits are now subject to appropriations for reserves not chargeable to cost, and to deductions for dividends payable out of current earnings. The balance is transferred to the Surplus account.

The Surplus account contains two classes of surplus, viz., (1) appropriated for depreciation of reserves not chargeable to cost, for possible losses of assets, for redemption of debts, or for federal income taxes; (2) free surplus available for distribution. The reconciliation of the account as between the first day and the last day of the accounting period should be made in two sections, as indicated above. In the first section all increases and all decreases of reserves are shown to result in the balance expressed by the balance sheet; in the second section all losses previously taken as gains and all gains previously taken as losses are to be recorded, as well as the distributions of surplus under the form of dividends. Needless to say, the transfer of net operating profits belongs to the second section.

In the solution presented here, you will undoubtedly notice that the sales of prior periods, returned in the present period, have been divided as to their components, cost and profits;

that the cost lost through the irreparable injuries sustained by the goods has been shown as a profit and loss charge, whereas the profit has been charged to surplus. This treatment is indicated by the very nature of the loss. Sales contain two things - cost and profit. When a sale is made, goods are exchanged for an account receivable which, in turn, contains two things - an exchange of a value for another value, and profit. The profit on the sale finds its way into the surplus through the profit and loss; the capital element remains, subject to future transformations. If, in the next period, the sale is returned and the goods are in proper condition, only a past profit has been lost and the surplus must be adjusted to the extent of the profit lost; if the goods are not resalable, the loss of the capital materializing in this period is a profit and loss charge. The loss of profit remains a surplus adjustment.

As to terminology: The use of the captions "Commercial Expense" and "Commercial Profit" are from my viewpoint far better than the expressions "Selling Expense" and "Selling Profits." If you adopt the latter captions, the cost of distributing the goods to their markets has to be treated as a deduction from the sales. This is so often the cause of ridiculous results that it should be resorted to as little as possible. If you were to deduct from the sales of a New York department store the cost of delivering the goods sold, and to call the resulting figure "Net Sales" or "Net Income from Sales", they would wonder at you, and perhaps laugh at you. They consider such cost as

cost of commercializing the goods and, therefore, as an out-and-out consumption of gross profits, precisely on the same lines as selling cost. Consequently, it is better to use the caption "Commercial Expenses," and to subdivide the group as follows: packing, wrapping, delivering, etc., and selling.

As to the treatment of cost of financing, protection of capital, taxes, etc., as expenses incurred for the benefit of the enterprise in general, it has the advantage of avoiding the use of the classification "Deductions from Income," which a great many business people do not like at all. Further, by showing the cost of financing net, you not only avoid "Additions to Income" which are generally supposed to have nothing to do with operations and which in reality emanate from them, but you are stating the truth in a far clearer way.

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(3) Prepay
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not

TOTAL OPERATIN

Solution of Problem No. 5

Exhibit "A"

THE KNICKERBOCKER MANUFACTURING COMPANY

ASSETS - FINANCIAL SECTION

CAPITAL ASSETS:		
Land and Buildings		$156,365.18
Power Plant, Machinery and Tools	$134,706.51	
Less Depreciation charged to Cost	43,018.67	
Balance Undepreciated		91,687.84
Furniture and Fixtures		9,700.24
Trade-Mark and Patterns		5,066.06
Transportation Equipment		28,535.67
OPERATING ASSETS:		
Net Fund Entrusted to Operating Department		618,004.68
TOTAL ASSETS - Financial Section		$909,359.67

ASSETS - OPERATING SECTION

OPERATING ASSETS:		
(1) Trading and Working:		
(a) Trading:		
Inventory of Finished Goods	$185,553.05	
Scrap Materials	8,833.65	
Total Trading		$194,386.70
(b) Working:		
Goods in Process	$ 35,501.93	
Manufacturing Materials	462,809.52	
Consumable Supplies	28,254.50	
Total Working		526,565.95
		$720,952.65
(2) Current:		
Cash	$ 42,392.58	
Accounts Receivable	163,240.43	
Liberty Bonds	7,175.00	
Total Current		212,808.01
(3) Prepayments:		
Insurance	$ 4,893.17	
Bills of Creditors Discounted; Supplies not received; not inventoried	4,705.38	
Total Prepayments		9,598.55
TOTAL OPERATING ASSETS		$943,359.21

LIABILITIES - FINANCIAL SECTION

CAPITAL LIABILITIES:		
Capital Stock:		
Preferred	$112,000.00	
Common	1,500.00	
Total		$113,500.00
Funded Debt:		
Mortgage on Real Estate		71,800.00
SURPLUS: (See Exhibit "C")		
(1) Appropriated:		
(a) For Depreciation of Physical Units not chargeable to cost	$ 27,510.81	
(b) For possible Losses of Accounts Receivable	4,085.05	
(c) For Federal Taxes on 1918 Income	32,180.00	
Total Appropriated	$ 63,775.86	
(2) Free	660,283.81	
Total Surplus		724,059.67
TOTAL LIABILITIES - Financial Section		$909,359.67

LIABILITIES - OPERATING SECTION

OPERATING LIABILITIES:		
(1) Current Debt:		
Notes and Loans Payable	$265,000.00	
Creditors for Merchandise	36,480.51	
Dividends to Stockholders	2,240.00	
Total Current Debt		$303,720.51
(2) Accrued Debt:		
Salaries and Wages	$ 15,011.82	
Commissions	6,622.20	
Total Accrued Debt		21,634.02
TOTAL OPERATING LIABILITIES		$325,354.53
(3) Net Fund of Operating Assets Loaned by Financial Department		618,004.68
		$943,359.21

Exhibit "B"

THE KNICKERBOCKER MANUFACTURING COMPANY

SUMMARY STATEMENT OF INCOME AND PROFIT AND LOSS

For the Year Ended December 31, 1918

INCOME FROM SALES:		
Gross Sales	$2,136,392.87	
Deduct Returned Sales and Allowances on defective goods	4,472.91	
Net Sales - Income from Sales		$2,131,919.96
COST OF GOODS SOLD:		
(1) Inventory of Finished Goods, January 1, 1918	$ 118,504.08	
Deduct Salesmen's Samples taken out of stock	14,172.74	
Balance	$ 104,331.34	
(2) Manufacturing Cost of Goods Finished by Departments 6 and 7, during the year (as per Schedule No. 1)	1,359,184.54	
(3) Cost of Finished Goods available for sale	$1,463,515.88	
(4) Deduct Inventory of Finished Goods, December 31, 1918	185,553.05	
Cost of Goods Sold		1,277,962.83
GROSS PROFIT ON SALES		$ 853,957.13
COMMERCIAL EXPENSES:		
Shipping (as per Schedule No. 3)	$ 233,579.89	
Selling " " " " "	326,847.85	
Total Commercial Expenses		560,427.74
COMMERCIAL PROFIT		$ 293,529.39
ADMINISTRATIVE AND GENERAL EXPENSE:		
Administrative (as per Schedule No. 4)	$ 82,323.50	
General Expense:		
Cost of Financing (as per Schedule No. 4)	41,930.03	
Protection of Capital " " " "	9,030.00	
Taxes " " " "	10,000.00	
Total Administrative and General Expense		143,283.53
PROFIT FROM OPERATIONS		$150,245.86
PROFIT AND LOSS CHARGES (as per Schedule No. 5)		18,542.18
PROFIT AND LOSS SURPLUS FOR THE YEAR		$131,703.68
APPROPRIATION FOR RESERVES NOT CHARGEABLE TO COST (See Exhibit "C")		6,226.51
PROFIT AND LOSS BALANCE - Transferred to Surplus		$125,477.17

Exhibit "C"

THE KNICKERBOCKER MANUFACTURING COMPANY

RECONCILIATION OF THE SURPLUS

APPROPRIATED SURPLUS

12/31/18	Income Taxes Paid	$ 34,130.00	1/1/18	Initial Balances:	
	Losses of Accounts Receivable Compensated by Reserve	1,285.67		Reserve for Income Taxes	$ 34,130.00
	Excess of Reserve for Accounts Receivable, returned to free surplus	4,933.04		" " Depreciation not charged to cost	23,513.67
				Reserve for Accounts Receivable.	8,074.39
	Closing Balance (carried down):		12/31/18	Increase of Reserve for Depreciation not chargeable to cost	3,997.14
	Reserve for Income Taxes	32,180.00		Increase of Reserve for Accounts Receivable	2,229.37
	" " Depreciation not chargeable to cost	27,510.81		New Reserve for Income Taxes	32,180.00
	Reserve for Accounts Receivable	4,085.05			
		$104,124.57			$104,124.57

FREE SURPLUS

12/31/18	Sales of Prior Periods, returned in this period; profit thereon	$ 5,680.66	1/1/18	Initial Balances	$574,382.71
	Provision for Income Taxes	32,180.00	12/31/18	Appropriated Surplus for Accounts Receivable sent back	4,933.04
	Dividends on Preferred Stock	8,395.51		Recovery of Insurance Premiums, previously charged to operations	1,727.06
	Closing Balance (carried down)	660,283.81		Profits of the year, transferred	125,477.17
		$706,519.98			$706,519.98

12/31/18 Balances Brought Down:

(1)	Appropriated Surplus:	
	Reserved for Federal Income Taxes	$ 32,180.00
	Depreciation not chargeable to cost	27,510.81
	Accounts Receivable	4,085.05
	Total Appropriated	$ 63,775.86
(2)	Free	660,283.81
	Total (see Exhibit "A")	$724,059.67

(a)

(b)

(c)

(d)

(e)

(f)

(g)

(h)

(i)

(j)

Schedule No. 1 of Exhibit "B"

THE KNICKERBOCKER MANUFACTURING COMPANY

DETAIL OF MANUFACTURING COST OF GOODS FINISHED DURING THE YEAR ENDED

DECEMBER 31, 1918, BY DEPARTMENTS

	No. 1	No. 2	No. 3	No. 4	No. 5	No. 6	No. 7	TOTAL
(a) INITIAL INVENTORY IN PROCESS, January 1, 1918	$	$ 2,009.26	$	$ 57.97	$	$ 8,532.36	$ 13,495.98	$ 24,095.57
(b) DEPARTMENTAL COST OF OPERATIONS OF THE YEAR:								
Materials	$372,996.65	$69,776.09	$ 55,079.63	$20,500.69	$51,077.42	$ 64,990.44	$ 485,459.19	$1,119,880.11
Direct Labor	4,300.22	6,035.97	10,176.54	3,867.97	6,863.69	16,197.53	45,622.98	93,064.90
Overhead (as per Schedule No. 2)	21,113.23	15,837.79	11,352.32	6,839.88	7,030.83	20,025.20	85,739.61	167,938.86
Total Departmental Cost	$398,410.10	$91,649.85	$ 76,608.49	$31,208.54	$64,971.94	$101,213.17	$ 616,821.78	$1,380,883.87
(c) INTER-DEPARTMENTAL TRANSFERS OF COST:								
Dept. No. 1 transfers to...	$	$	$	$ 305.86	$ 3,300.19	$ 96,231.66	$ 298,572.39	$ 398,410.10
" " 2 " " ...						93,659.11		93,659.11
" " 3 " " ...							171,736.61	171,736.61
" " 4 " " ...			97,106.43					97,106.43
" " 5 " " ...				68,272.13				68,272.13
" " 6 " " ...							15,606.04	15,606.04
" " 7 " " ...	2,316.66					24,220.92		26,537.58
Total Inter-Departmental Transfers	$ 2,316.66	$	$ 97,106.43	$68,577.99	$ 3,300.19	$214,111.69	$ 485,915.04	$ 871,328.00
(d) GROSS ACCUMULATED COST	$400,726.76	$93,659.11	$173,714.92	$99,844.50	$68,272.13	$323,857.22	$1,116,232.80	$2,276,307.44
(e) CREDITS FOR TRANSFERS:								
To Other Departments	$398,410.10	$93,659.11	$171,736.61	$97,106.43	$68,272.13	$ 15,606.04	$ 26,537.58	$ 871,328.00
" Expense Accounts			10.95			9,772.87		9,783.82
Total Credits	$398,410.10	$93,659.11	$171,747.56	$97,106.43	$68,272.13	$ 25,378.91	$ 26,537.58	$ 881,111.82
(f) NET ACCUMULATED COST	$ 2,316.66	$	$ 1,967.36	$ 2,738.07	$	$298,478.31	$1,089,695.22	$1,395,195.62
(g) DEDUCT INVENTORY IN PROCESS, December 31, 1918	2,316.66		1,967.36	2,738.07		16,011.94	12,467.90	35,501.93
(h) GROSS MANUFACTURING COST OF GOODS FINISHED	$	$	$	$	$	$282,466.37	$1,077,227.32	$1,359,693.69
(i) DEDUCT INCREASE OF INVENTORY OF SCRAP MATERIAL						209.15	300.00	509.15
(j) NET MANUFACTURING COST OF GOODS FINISHED						$282,257.22	$1,076,927.32	$1,359,184.54

Schedule No. 2 of Exhibit "B"

THE KNICKERBOCKER MANUFACTURING COMPANY

DETAIL OF OVERHEAD COMPONENTS CHARGED TO MANUFACTURING COST, BY DEPARTMENTS

FOR THE YEAR ENDED DECEMBER 31, 1918

PARTICULARS	No. 1	No. 2	No. 3	No. 4	No. 5	No. 6	No. 7	TOTAL
Superintendence.....	$ 4,086.15	$ 5,915.80	$ 4,944.75	$4,098.10	$1,441.18	$ 9,353.78	$27,624.91	$ 57,464.67
Indirect Labor.....	2,578.13	6,399.79	4,252.15	1,551.99	1,239.52	2,698.79	5,484.14	24,204.51
Depreciation of Machinery, Tools, etc.....	871.21	828.43	85.99	312.61	90.37	893.42	1,899.65	4,981.68
Power.....	6,426.89	813.53	311.78	662.37		982.74	691.73	9,889.04
Heating, Lighting, etc....	656.40	492.55	196.32	70.61	71.87	1,108.95	5,308.72	7,905.42
Inward Freight, etc.....	4,100.00	615.20	801.50	115.00	1,815.25	2,110.11	19,010.30	28,567.36
Distribution Expense.....	615.20	109.03	72.84	10.00	1,112.85	1,530.20	21,381.01	24,831.13
Miscellaneous, including Repairs to Machinery, etc.....	1,779.25	663.46	886.99	19.20	1,259.79	1,347.21	4,339.15	10,095.05
Total.....	$21,113.23	$15,837.79	$11,352.32	$6,839.88	$7,030.83	$20,025.20	$85,738.61	$167,938.86

Schedule No. 3 of Exhibit "B"

THE KNICKERBOCKER MANUFACTURING COMPANY

DETAIL OF COMMERCIAL EXPENSES FOR THE

YEAR ENDED DECEMBER 31, 1918

SHIPPING EXPENSES:		
Cost of Distribution to Jobbers and Warehouses	$173,346.48	
Warehouse charges pending Distribution	17,000.13	
Salaries and Wages - Shipping Department	25,843.35	
Traveling Expense - Shipping Manager	656.42	
Miscellaneous Shipping Materials Consumed	4,794.28	
Miscellaneous Shipping Expense	11,939.25	
Total Shipping Expenses		$233,579.89
SELLING EXPENSE:		
Salaries of Selling Force	$ 23,128.75	
Commissions of Selling Force	185,407.34	
Advertising	108,264.43	
Miscellaneous Expense	10,047.33	
Total Selling Expense		326,847.85
TOTAL COMMERCIAL EXPENSE		$560,427.74

Schedule No. 4 of Exhibit "B"

THE KNICKERBOCKER MANUFACTURING COMPANY

DETAIL OF ADMINISTRATIVE AND GENERAL EXPENSE FOR

THE YEAR ENDED DECEMBER 31, 1918

ADMINISTRATIVE EXPENSE:			
Salaries of Officers		$60,000.00	
General Office Salaries		10.000.00	
All Other Administrative Expense		12,323.50	
Total Administrative Expense			$ 82,323.50
GENERAL EXPENSE:			
Cost of Financing:			
Discounts on Customers' Accounts	$37,352.14		
Deduct Discounts on Creditors' Accounts	20,718.64		
Balance		$16,633.50	
Interest and Discount on Notes and Loans		25,296.53	
Total Cost of Financing		$41,930.03	
Protection of Capital:			
Fire Insurance Premiums		$ 5,630.00	
Employers' Liability Premiums		3,400.00	
Total Protection of Capital		$ 9,030.00	
Taxes:			
Local Taxes, Licenses, Fees, etc		$10,000.00	
Total General Expense			60,960.03
TOTAL ADMINISTRATIVE AND GENERAL EXPENSE			$143,283.53

Schedule No. 5 of Exhibit "B"

THE KNICKERBOCKER MANUFACTURING COMPANY

PROFIT AND LOSS CHARGES FOR THE YEAR ENDED

DECEMBER 31, 1918

Breakage of Carboys and Empties.....	$ 1,554.38
Cost of Goods Sold in Prior Periods, returned in this period unsalable.....	14,351.09
Freight on Sales of Prior Periods, returned in this period.	2,636.71
	$18,542.18

P R O B L E M N O. 6

THE BALANCE SHEET OF LIFE INSURANCE COMPANIES

PROBLEM NO. 6

THE BALANCE SHEET OF LIFE INSURANCE COMPANIES

Text of the Problem

From the following accounts, footnotes, and additional facts, prepare a balance sheet on the general lines required by the Superintendent of Insurance of the State of New York.

Real Estate.....(1)	$ 1,550,000.00	Claims under Policy Contracts.....(6)	$ 292,900.00
Time Loans on Collateral.....	300,000.00	Dividends left at interest.....	74,600.00
Real Estate Loans..	904,235.00	Premiums Collected in advance.....	60,000.00
Loans on Policies..	6,418,130.00	Interest on Foreign Policy Loans, Collected in advance	64,650.00
Investments in Stocks.....(2')	1,898,000.00	Commissions Due and Accrued.....	25,000.00
Investments in Bonds.....(2²)	14,172,750.00	Salaries, etc., Accrued.....	7,610.00
Cash in Offices....	75,000.00	Dividends due to Policy-holders...	20,220.00
Cash in Depositories.....(3)	3,920,256.57	Dividends on Capital Stock.....	35,000.00
Agents' Balances(4)	330,979.18	Accumulated Insurance Fund.....	28,699,951.55
Furniture, Fixtures, and Stationery...	40,500.00	Capital Stock.....	500,000.00
Accrued Interest on Mtges.....	1,930.50		
Accrued Interest on Bonds.....	90,050.00		
Accrued Interest on Collateral Loans.	960.30		
Accrued Interest on Policy Loans.....	12,000.00		
Accrued Rental of Leased Property..	5,000.00		
Uncollected Premiums Due and Accrued.....(5)	60,140.00		
	$29,779,931.55		$29,779,931.55

(1) Unencumbered - market value $2,100,000.

(2) 2' Market value $2,000,000; 2² market value $15,100,000.

(3) On deposit at interest $3,401,456.57; not at interest $518,800.

(4) Debits $450,710.20; credits $119,731.02.

(5) Entered in the ledger only on last day of the year; entry reversed on the first day of the next year. Made up of: due and unreported $10,140; deferred: new business $10,000; old business $40,000. Loading thereon: on new business $1,000; on old business $5,000.

(6) For death claims due and unpaid $42,300; in process of adjustment, $50,000; reported, no proof received, $150,000 - resisted by the company $50,600.

ADDITIONAL FACTS

The dividend department reports that according to their approximate calculations up to and including December 15, 1918, there should be appropriated $266,500 for dividends on deferred dividend policies.

The actuaries report that the legal reserve on all outstanding policies at December 31, 1918, amounts to $23,000,000, including reversionary additions; that the net present value of annuities is $980,000; that the net value of the risks of the company reinsured in other companies is $210,000.

The real estate department reports that all mortgages securing loans on real estate are first liens.

The tables used by the company's actuaries are on the basis of 3% and 4%.

Discussion of Problem No. 6

The balance sheet of a life insurance company is probably the most difficult and the least satisfactory of all the statements which an accountant may be called upon to establish.

Edward P. Moxey, Jr., says in his book "Accounting Systems," that "the accounting system of an insurance company is almost as simple as that of a building loan association."

This may be true, although after years of auditing of the books of a large insurance company I hold an entirely different opinion. In principle, however, Mr. Moxey is right, in that the general books are not intended to record the all-important liability of the company for legal reserve on outstanding policies. The facts given by the general ledger are merely expressive of financial results; they can be nothing else, because the accounting department has no knowledge of the bases on which the reserves are computed. Further, if they had such a knowledge, it would be impossible for them to give expression to the facts at any time during the accounting period; they could only do so yearly, in statement form, after Homeric effort.

The general ledger of a life insurance company expresses only such liabilities as have matured, or have accrued and are to mature shortly in a positive manner within a period readily determined. It does, indeed, contain during the accounting period the same classes of nominal accounts as the ledger of any business concern; and, at the end of the accounting period, the re-

sult of these accounts appears as a profit or a loss, transferable to the credit or debit of the "Surplus," "Insurance Reserve," or "Accumulated Insurance Fund," whatever name the account bears.

If, however, you will bear in mind that the liability of the company for the risk that it takes in insuring the life of the policy-holders cannot, obviously, be carried on the financial books, you will readily understand that the account Surplus is far from representing the difference between assets and liabilities; that it must, in fact, represent reserves against future liabilities, as well as unassigned funds. To make this clear requires a long explanation, which I am going to try to make as brief and simple as possible.

The compensation received by the company for assuming the risk of the insured's death is received not all at once but periodically, for as many yearly periods or subdivisions thereof as is provided by the insurance contract. This contract may provide for premiums to be paid by the insured as long as he wishes to be under the company's protection; or it may be high enough to produce within 20 years, or 10 years, the amount of money necessary to accumulate such a fund as will warrant the company to carry the risk, without further compensation, for the whole of the insured's life. It may, indeed, provide both for the protection of his life and for additional benefits.

The premium is made up of two distinct elements: (1) the amount necessary to defray the insurance expense, that is to say, commissions, writing of insurance, and a pro rate for

administrative expense, due consideration being given to the reduction of certain of these expenses during the renewal period of the policy; (2) an amount which, placed at interest on the exact date of its maturity, will produce at the end of any given year the reserve fund that the policy must have in order to hold its unit place in a group of policies of the same age, all obeying the same mathematical laws.

Every policy belongs to a group, to a class, the determining elements of which are: (1) homogeneous contractual relations, and (2) similarity of ages of the policy-holders constituting the group. Assume that a group of 100,000 men, of the age of 30, insure their lives individually for $1,000 each, the premiums to be paid regularly during their life time: the first thing that comes to your mind is that the question of computing the premium to be charged becomes very complex through the simple fact that some of the group of insured will die during the first year, others during the second year, etc., until, after 30 years, there will be comparatively a very small number of survivors. Axiomatically, those who survive from year to year have to pay such sums as will enable the company to accumulate the funds necessary to pay all claims as they mature.

Actuaries are provided with sundry tables, some made by themselves as a body, and resulting from the experience of the companies which they serve; others computed from the experience of a number of representative insurance companies operating in America; while still others take as a basis the statistics of

European companies or governments, principally when intending to operate in foreign fields. The bases provided by these tables are affected by a thousand and one things developing daily, and tending to prolong or to reduce the life of mankind in general; but as it would serve no purpose to complicate matters to the point where the simplicity of the original proposition would be vitiated, nothing more will be said about this.

Consulting their tables, the actuaries ascertain that the mortality of the group will be, say, 760 in the first year, 770 in the second year, oscillating yearly thereafter, in a well-known manner, between 800 and 2,350, until finally, at the end of the 98th year of the tables, that is to say, at the end of the 63rd period of the group life, 4 policy-holders will survive.

The proposition confronting the actuaries can be stated as follows: Being given a certain number of years, involving a constantly decreasing amount of premiums to be received, and a constantly fluctuating number of claims to be paid, find a sum of money which at a basic rate of compound interest will produce enough to pay all claims as they mature. Dividing the result by the original number of policy-holders, i.e., 100,000, will give the individual yearly premium.

This rule must be understood as not considering the element of the premium which is to defray commissions and insurance expense, etc., and is usually referred to as "loading."

It is easy to conceive that the face value of the policies representing the risk assumed by the insurance company

cannot be treated as a liability. The liability exists in fact, but not in that manner. Since the tables of mortality are the bases of the premiums, the only positive liability of the company at the end of any given year is the amount of the accumulation of funds that the tables provide for at the end of that period. The only way to ascertain whether or not the required funds have been accumulated is to ascertain the profit and loss surplus of the period, and add it to the previous surplus, properly reconciled. Then, upon submission by the actuaries of the mathematical amount of surplus funds which the existing policies must have accumulated at such a time, the amount of positive liabilities to policy-holders which the surplus contains is ascertained and stated. The remainder is unassigned surplus funds.

The proposition is far from being as simple as the foregoing might seem to indicate; but it is not my intention to give you a course in life insurance work. I merely want to make you understand the conditions surrounding the establishment of the balance sheet of life insurance companies.

The portion of the premium which must produce the reserve can be affected only by interest or by the maturity of death losses. The funds may be invested in securities which will produce more interest than the required amount, but they cannot be invested in such a manner as to produce less; and yet errors of judgment may be made, financial weakness may develop where strength was expected, deaths may exceed the expectations concerning the group, tables and their wisdom notwithstanding.

The possibilities are so many and so serious, the care to be exercised is so great, that the custody of these reserve funds, usually referred to as legal reserves, had better be left to the actuarial department.

As to the portion of the premium which represents loading, it confines, in principle, the amount of expenses to the circle which limits the premium. If the company is carefully administered, it is safe to say that the premium loading will produce more than is required. In the latter event, a partial refund of the original amount will be made to the policy-holder under the form of a "dividend." This dividend may be collected in cash, or used to pay future premiums, or left with the company at interest, or in certain cases used to purchase additions to the original policy contracts. As these additional amounts revert to the policy-holder at the time of his death, or at the time of the expiration of the policy, they are called reversionary additions. They represent, in fact, the amount which the dividends will have produced at compound interest, at a given rate, at the maturity of the policy.

The premiums received by a life insurance company are considered as income. In principle, the only portion of the premium which can be so considered is the portion received, the portion earned by the company but not collected being positively excluded. The principle was rigidly enforced in the days where the majority of the policies were subject to a clause which voided the contracts and all benefits thereunder if the premiums

were not paid within a reasonable period after they were due. Now, however, practically all policies have a value of some sort when they have been in force for a period, which varies with the companies and the types of policies but can generally be stated as three years. Under such conditions it is perfectly feasible to consider as income of any given year all premiums of that year, and, in case of the adjustment of the policy to its legal value when premiums are not collected, to collect them together with interest by deducting them from the amount of the benefit to which the policy-holder is entitled. Still, it is probably true that uncollected premiums do not figure on the general books as income during the accounting period. They are, however, taken into consideration at the end of such a period, and may or may not be recorded on the ledger at the time; if they are recorded, the entries giving them expression may be reversed the next day, or henceforth the books may be kept on the accrual basis.

The same is true of every item which goes towards constituting the income of the company. This explains the use of the classification "Non-Ledger Assets" by the form on which companies must report to the state.

The use of market values, as suggested by the solution of the problem presented to you, has been strenuously objected to by certain accountants. It is said that since the basic principle of a life insurance company is to invest funds at the best possible rates, for periods as long as possible,

in order to accumulate its legal reserves, it has nothing to do with market fluctuations. It could, indeed, take advantage of a low market to buy good investments; it could, on the other hand, sell in an extraordinarily high market, to buy later at a lower price; but it is very unlikely to do so, precisely because it is not interested in fluctuations and consequent profits or losses.

A life insurance company is not a speculator; it is an investor. It is undeniably true that it need not worry about market values, so long as the fluctuations thereof do not affect the security of its investments. But it is just as true that the company very probably does not figure its surplus, or its dividends on the status of the market. And since the state does not require that the company's surplus be adjusted on the books to meet the amount reported on the state form, no one is the worse off for the use of market values. The state form is, to a great extent, established for purposes of control; the quantity of schedules to be furnished affords a ready means of ascertaining the possible violations of the insurance laws of the state; the use of market values affords additional information suitable to the state purpose; it does not force upon the company a policy which might be injurious to some classes of policy-holders as against other classes; hence it is harmless to the interested parties. As it may be useful to the state, nothing can be said against it.

So far as income from investments is concerned, and speaking particularly of investments in bonds (this being the

large majority of securities owned by a life insurance company), the only thing that the company considers as income is the interest as affected by the amortization of the premiums and the accumulation of discounts. If there is a condition under which the theory of amortization applies, such a condition is presented by a life insurance company, whose object is, basically, to keep its investments until their maturity and to acquire them at such a rate as will yield the required income.

Broadly speaking, the Profit and Loss account of a life insurance company is made up of the following elements:

Debits	Credits
Insurance Expense	Premiums on Policies
Commissions to Agents	Annuity Premiums
Agency Expense	Dividends on Investments
Investment Expense	Interest on Investments
Administration Expense	Gains on Sales of Investments
Claims Matured under Policies	
Mortality	
Surrenders, Lapses, Changes	
Annuities	
Dividends to Policy-Holders	
Losses on Sales of Investments	

The above is given to you in order to emphasize the fact that claims under policies are not considered as payments of liabilities, but as part of the disbursements of the year, expected under the provisions of the policies and by virtue of the basic figures which established the premium income.

As to the surplus, whatever there is left after ascertaining the liability for legal reserves, appropriating certain

funds for extraordinary purposes, and paying the dividends to the stockholders, is supposed in a general way to belong to the policy-holders. For the sake of showing you how vague is the nature of this surplus, I will reproduce here the substance of an article inserted in an agents' manual by a large insurance company for the education of its solicitors:

"SURPLUS"

"What is the surplus of a life company? Is it a strange, weird, mysterious, abstruse mathematical quantity about which there must be all sorts of doubts and uncertainties, and the true significance of which can only be gathered after profound research, and only by those who have rare technical scientific knowledge? It would seem so from the talk with which some people connected with certain life companies favor the public.

"But, as a matter of fact, the surplus of a life company is precisely what the surplus of any individual is. It is nothing more nor less than the money, or property, which the company holds after making provision for all its obligations. It is, therefore, the most important part of its holdings. It measures its wealth, its strength, the quality of its management, and its success.

"Recently a trust company and a large banking firm in New York closed their doors. Both the company and the firm owned property worth millions, but their obligations ran into the millions also, and exceeded their assets. In other words, they had ceased to be wealthy because they lacked surplus.

"The man who puts all his savings into a house valued at $20,000 is not worth that sum if there is a mortgage on the house of $15,000. His wealth is represented by his surplus - the difference between the value of the house and the amount of the mortgage, namely, $5,000. 'But,' someone says, 'doesn't the surplus of a life company differ from the surplus of a business firm or individual? Is it not, in fact, a liability?' Let us discuss that proposition: The surplus of a company conducted on the mutual plan is, in a certain sense, a liability. It is, so to speak,

an item of liability which the company is responsible for to those inside the organization. The surplus, therefore, measures their wealth - the surplus fund from which their dividends are drawn. And this fund is invested and reinvested from year to year for their further enrichment. Moreover, it measures the value of the guarantees they collectively make to one another, under the policy contract held by each member.

"The agent of the company need not hesitate in admitting that the surplus is a liability; it is a liability of an altogether different character from all the other liabilities of the company. Take any other item of indebtedness; the only way to get rid of it is by paying it. But if the whole of this surplus should be annihilated, that would not impair the solvency of the company. Why? Because all the other liabilities of the company are backed by assets sufficient to discharge them to the uttermost farthing. And if the entire surplus should be annihilated, it is even conceivable that the company could still continue to prosper; might build up new strength; might gradually accumulate a new surplus, and again begin to pay dividends to policy-holders from that new accumulation. But the only reason that surplus could thus be annihilated without disaster would be that it is surplus and not that portion of the assets necessary to provide for the actual obligations of the company.

"A tree is known by its fruits, and it makes mighty little difference what surplus is called if it exists. It is to a life company the most valuable thing in the world. It is its wealth, its strength, its means of doing the greatest good to the greatest number. Surplus is surplus. Call it 'surplus liabilities' or 'security-dividend fund,' or 'dividend reserve,' or what you will. What it is called matters not; what it is is all important."

In the light of the ponderous explanation of the surplus given above, is it any wonder that I stated at the beginning of this discussion that the financial statements of life insurance companies were among the most dangerous and difficult ones that an accountant ever had to establish?

The solution presented here is constructed, as per requirements of the problem, on the general lines of the state form. If the company were to publish its own balance sheet, this is probably the form in which it would be presented.

CONDENSED BALANCE SHEET - DECEMBER 31, 1918

A S S E T S

Investments:		
*Real Estate....	$ 1,550,000.00	
*Bank and Other Stocks.....	1,898,000.00	
*State, Municipal, Railway, and Otner Bonds.....	14,172,750.00	
Loans on Real Estate, first liens.....	904,235.00	
Loans on Policies.....	6,418,130.00	
Loans on Collateral.....	300,000.00	
Total Investments.....		$25,243,115.00
Cash.....		3,995,256.57
Agents' Balances, Due.....		330,979.18
Accrued Interest, Rents, etc.....		109,940.80
Deferred and Unreported Premiums.		60,140.00
All Other Assets.....		40,500.00
TOTAL ASSETS.....		$29,779,931.55

L I A B I L I T I E S

Accumulated Insurance Reserve Fund.....	$23,770,000.00
Liability for Claims under Policies.....	292,900.00
All Other Liabilities.....	287,080.00
Capital Stock.....	500,000.00
Surplus Fund for all contingencies.....	4,929,951.55
TOTAL LIABILITIES.....	$29,779,931.55

*If market values were used, the assets would be increased in the amount of $1,579,250; the same increase would be reflected by the surplus fund for all contingencies.

Solution of Problem No. 6

BALANCE SHEET - STATE FORM

LEDGER ASSETS:

Book Value of Real Estate (Less Encumbrances $ None)..... (as per Schedule "A")		$ 1,550,000.00
Mortgage Loans on Real Estate (First Liens) (as per Schedule "B").....		904,235.00
Loans Secured by pledge of Bonds, Stocks, or other collateral (as per Schedule "C").....		300,000.00
Loans made to Policy-holders on this company's policies assigned as Collateral.....		6,418,130.00
Book Value of:		
Bonds.....	$14,172,750.00	
Stocks.....	1,898,000.00	
Total (as per Schedule "D").....		16,070,750.00
Cash:		
In Company's Office.....	$ 75,000.00	
Deposits in Trust Cos. & Banks:		
Not on Int. $518,800.00		
On " 3,401,456.57	3,920,256.57	
Total Cash.....		3,995,256.57
Agents' Balances:		
Debit.....	$ 450,710.20	
Credit.....	119,731.02	
Net.....		330,979.18
Furniture, Fixtures, Stationery, and Supplies.....		40,500.00
TOTAL LEDGER ASSETS (forward).....		$29,609,850.75

TOTAL LEDGER ASSETS (forwarded).....		$29,609,850.75
NON-LEDGER ASSETS:		
Interest on Mortgages:		
Due.....	$ --- --	
Accrued.....	1,930.50	
Total (as per Schedule "B").....	$ 1,930.50	
Interest on Bonds:		
Due.....	$ --- --	
Accrued.....	90,050.00	
Total (as per Schedule "D," Part 1).	90,050.00	
Interest on Collateral Loans:		
Due.....	$ --- --	
Accrued.....	960.30	
Total (as per Schedule "C," Part 1).	960.30	
Interest on Premium Notes, Policy Loans, or Liens:		
Due.....	$ --- --	
Accrued.....	12,000.00	
Total.....	12,000.00	
Interest Due and Accrued on Other Items: (Give items and amounts).....	--- --	
Rents on Company's Property, or Lease:		
Due.....$	--- --	
Accrued.....	5,000.00	
Total.....	5,000.00	
Total Interest and Rents Due and Accrued.....		109,940.80
Market Value of Real Estate over Book Value (as per Schedule "A").....		550,000.00
Market Value (not including interest) of Bonds and Stocks over Book Value (as per Schedule "D").....		1,029,250.00
(Forward).....		$31,299,041.55

(Forwarded).....			$31,299,041.55
	New Business	Old Business	
Gross Premiums Due and Unreported on policies in force December 31, 1918 (Less Reinsurance Premiums)..		$10,140.00	
Gross Deferred Premiums on policies in force December 31, 1918 (Less Reinsurance Premiums)..	$10,000.00	40,000.00	
Totals.....	$10,000.00	$50,140.00	
Deduct Loading.....	1,000.00	5,000.00	
Net Amount of Uncollected and Deferred Premiums.....	$ 9,000.00	$45,140.00	54,140.00
All Other Assets (give items and amounts).....			--- --
GROSS ASSETS.....			$31,353,181.55
DEDUCT ASSETS NOT ADMITTED:			
Supplies, Stationery, Printed Matter, Furniture, Fixtures, and Safes.....			40,500.00
TOTAL ADMITTED ASSETS.....			$31,312,681.55

LIABILITIES, SURPLUS, AND OTHER FUNDS:

LEGAL RESERVE:		
Net Present Value of all the Outstanding Policies in force on the 31st day of December, 1918, as computed by actuaries, on the Actuaries' table and on the American Experience tables at 3% and 4%, including reversionary additions.....	$23,000,000.00	
Net Present Value of Annuities.....	980,000.00	
Total.....	$23,980,000.00	
Deduct Net Value of Risks of this company reinsured in other solvent companies.....	210,000.00	
NET RESERVE (forward).....		$23,770,000.00

NET RESERVE (forwarded)		$23,770,000.00
LIABILITY ON POLICIES CANCELED and not included in "Net Reserve," upon which a surrender value may be demanded		--- --
POLICY CLAIMS:		
Claims for Death Losses Due and Unpaid	$ 42,300.00	
Claims for Losses in Process of Adjustment	50,000.00	
Claims for Losses Reported, for which no proof has been received	150,000.00	
Claims for Death Losses Resisted by the Company	50,600.00	
Total Policy Claims		292,900.00
Dividends left with the Company at interest, and interest thereon		74,600.00
Premiums Collected in Advance		60,000.00
Unearned Interest and Rent, Collected in Advance		64,650.00
Commissions to Agents, Due and Accrued		25,000.00
Salaries and other expenses, Due and Accrued		7,610.00
Unpaid Dividends to Stockholders		35,000.00
Dividends declared on Annual Dividend Policies, Due and Unpaid		20,220.00
Amounts provisionally ascertained, awaiting apportionment upon deferred dividend policies, to and including December 15, 1918		266,500.00
Capital Stock		500,000.00
Unassigned Funds (Surplus)		6,196,201.55
TOTAL		$31,312,681.55

P R O B L E M N O. 7

THE CONSOLIDATED BALANCE SHEET

PROBLEM NO. 7

THE CONSOLIDATED BALANCE SHEET

(Adapted from the New York C.P.A. Examination)

Text of the Problem

The A Company has acquired all of the stock of two manufacturing companies known respectively as B and C.

In exchange, the stockholders of B and C have received $200,000 preferred stock, $200,000 common stock, and $100,000 collateral 6% gold bonds of Company A. The balance of the authorized capital stock of A (i.e., $100,000 of common stock) and the balance of the authorized bond issue (i.e., $50,000) have been paid for in cash, the bonds and the stock being sold at par.

The balance sheets of the companies at the time of the above transactions were as follows:

GENERAL BALANCE SHEETS

At December 31, 1918

A S S E T S	B	C	A
Real Estate	$ 50,000.00	$ 62,700.00	$
Machinery and Machine Tools	45,000.00	39,000.00	
Other Plant Equipment	10,000.00	7,000.00	
Shop and Hand Tools	6,000.00	3,000.00	
Furniture and Fixtures	4,900.00	5,000.00	
Office Equipment	1,050.00	1,740.00	
Goods in Progress	15,000.00	17,300.00	
Finished Goods	7,500.00	11,800.00	
Raw Materials	17,000.00	21,850.00	
Sundry Factory Supplies	3,500.00	6,650.00	
Bonds of Other Companies	60,000.00		
Stocks of Other Companies			500,000.00
Accounts Receivable	33,850.00	41,580.00	
Cash	4,941.00	30,500.00	200,000.00
Promissory Notes	5,000.00		
Accrued Interest on Investments	1,800.00		
Total	$265,541.00	$248,120.00	$700,000.00

LIABILITIES	B	C	A
Capital Stock Preferred.....	$100,000.00	$	$200,000.00
Capital Stock Common.....	100,000.00	50,000.00	300,000.00
First Mortgage Bonds 6%.....		150,000.00	
Collateral Gold Bonds 6%.....			200,000.00
Interest on Bonds.....		4,500.00	
Notes Payable.....	2,000.00	15,000.00	
Advances Payable.....	10,000.00		
Accounts Payable.....	15,300.00	9,345.00	
Surplus Reserved for Bond Redemption.....		7,500.00	
Surplus Reserved for Doubtful Accounts.....	1,035.00	637.00	
Surplus Available for Dividends.....	37,206.00	11,138.00	
Total.....	$265,541.00	$248,120.00	$700,000.00

In regard to the internal relations of the three companies, you have ascertained the following:

Company B owns $50,000 of the bonds issued by Company C; the notes receivable carried by Company B are time notes of Company C, issued in October, 1918, and having a maturity of six months; the accounts receivable of Company C contain $10,000 of advances made to Company B on December 27, 1918. The bonds issued for cash by Company A are owned by the stockholders of Companies B and C, the holdings being divided equally between the two sets of stockholders. The common stock of A, which was issued for cash, is held by persons not at any time stockholders of Companies B and C.

You are asked by the board of directors of Company A to establish, as at December 31, 1918, a consolidated balance sheet which will show clearly what Company A controls.

Discussion of Problem No. 7

The most important thing to be borne in mind, in connection with the consolidated balance sheet, is that it does not, at any time, appear on the books of the holding company.

The ledger of Company A, in this case the holding company, will always show an investment in stocks of affiliated companies, at the value given by the problem, unless a merger is resorted to. If a merger were to take place, Company A would become the operating company; Companies B and C would lose their identity through the surrender of their charter; the assets of the previously operating companies would be taken over by the holding company, subject to the liabilities attaching to these assets, and would have to take the place of the investment in stocks of affiliated companies, now to be canceled. Therefore, the difference between the net assets and the value of A's investment would have to be valued by the directors of Company A, given a name, and allocated. That is to say, it would have to be called good-will, or added to the value of some asset or of some of the assets.

But there is no question of a merger in this case. The directors of Company A want merely a financial statement which will show exactly the assets that they control through the issuance of their stocks and bonds and through their ownership of the stock of affiliated companies.

Such being their requirements, it does not matter whether we give merely a balance sheet as per the solution sub-

mitted here, or a more detailed statement showing the assets of A, of B, of C, and the total controlled; the liabilities of A, of B, of C, and the total controlled; the surplus of B and of C, and the total controlled.

What matters is that we give the directors the facts that they are after, all the important facts and none of the immaterial facts.

Naturally, from the viewpoint of the holding company, none of the internal holdings of the controlled companies are of importance. Company B might owe $50,000 to Company C: if the payment were to be made by B, the holding company would be neither richer nor poorer; the cash that it controls would be precisely the same; the information conveyed by two elements which would simply inflate the accounts receivable and, correspondingly, the accounts payable of B and C, would be without value. In the case in point:

1. The total accounts receivable of the two controlled companies (i.e., $75,430) contain $10,000 of advances made by Company C to Company B; they must be eliminated. Correspondingly, when stating the liabilities, the liability of B for these advances by C will be eliminated.

2. Company B has an investment of $60,000 in funds of other companies, $50,000 of which are bonds issued by C. This holding of $50,000 must be eliminated and, correspondingly, the bonds of Company C, held internally, must not appear as a liability.

3. What is true of the bonds is also true of the interest thereon. Therefore, the asset accrued interest appearing in

the balance sheet of Company B, being made up of interest at 6% for six months on $50,000 of Company C's bonds (i.e., $1,500) and $300 accrued on other bonds, must be reduced to the latter figure. Correspondingly, the accrued liability of Company C must be reduced by $1,500.

4. The promissory notes of Company C, held by B, must be eliminated. For the same reason, the liability of C for notes must be reduced to $10,000.

5. The capital stock of Companies B and C must be eliminated, since the investment that it represents on the books of A will be replaced, in the consolidated statement, by the assets that such stock controls. For the same reason, the investment in stocks of other companies must disappear. Here, however, it happens that the elimination of the capital stock of B and C does not eliminate entirely the investment of A. The reason for that is that the stockholders of B and C, when they sold their stock holdings to A, received $250,000 more than the net of the assets of Companies B and C. To eliminate entirely A's investment requires the raising of the asset good-will in the precise amount of the payment made by A over and above the net value of the assets controlled by the stock acquired.

6. Since we have eliminated from the liabilities of C $50,000 of its outstanding bonds, it follows that 1/3 of the reserve for redemption of this indebtedness must be eliminated. This is done by transferring it to the free surplus.

7. To be true to form, it might be deemed advisable to reduce the free surplus of Company B in the amount of interest

accrued on C's bonds, which we have eliminated, and, correspondingly, to increase the free surplus of Company C. This, however, would change nothing, and afford no additional information. For this reason it has been omitted in the solution submitted.

Certain accountants object to carrying good-will in the consolidated balance sheet, and will do anything to eliminate it. They profess the same dislike for surplus. They eliminate the latter by deducting it from the good-will, and they will even attempt to eliminate the balance of good-will by deducting it from the most likely asset. How such a misrepresentation of facts can help the judgment of the directors of the holding company is, from my standpoint, hard to see.

The status of the surplus of the operating companies is inviolable; to have it absorbed by the good-will is tantamount to interfering with the prerogatives of the directorate. The directors are the only ones with sufficient authority to state what will be done with the surplus. If they want to get rid of it, all they have to do is to cause the operating companies to declare dividends sufficient to dispose of all surplus funds; the holding company will receive the dividends, and henceforth administer the company precisely as certain factories are administered, that is to say, as dependent bodies owning nothing and working with loaned capital for the common good. The trouble with this is that the operating companies are independent at law and in fact; the holding company owns their stock but not their assets. Through a fiction of ownership, they can demand that a statement be prepared,

replacing the stock ownership by the positive and negative elements which such stock controls. But nothing that may be done in that line will ever be embodied in the books of the holding company or in the books of the operating companies. I believe that we have no right, as accountants, to do away with facts the aspect of which we do not like, for reasons better known to us.

In the problem which affords the basis for this discussion, we have assumed that the holding company owns all the stock of the operating companies. What would happen if only, say, 90% of the stock were owned?

Several methods of handling this proposition have been suggested:

1. Take only 90% of all the assets, liabilities, and surplus of the operating companies.

2. Take the assets and liabilities of the operating companies in full; add the dissident stock to the capital stock of the holding company, and,

3. Ignore the dissident capital stock, and show a liability therefor.

4. Refer, be means of a footnote, to the fact that only 90% of the stock of the operating companies is owned by the holding company.

Methods 2 and 3 are practically the same, and operate very satisfactorily; method 1 is too cumbersome and far-fetched to be of much value; method 4 is inadequate.

The following examples of what the consolidated balance sheet would be under the different methods, if only 90% of the stock were held, will illustrate the foregoing remarks.

PROBLEM - Precisely the same as the subject of this lecture, but with a reference to the fact that only 90% of the stock of B and C is owned by A. The illustrations are summarized, for the purpose of space economy. For detail, see solution of original problem.

CONSOLIDATED BALANCE SHEET (Method 1)

CAPITAL ASSETS:		
Operating Companies.....	$235,390.00	
Less 10%.....	23,539.00	
Balance 90%.....	$211,851.00	
Good-Will - Holding Company.....	275,000.00	
Total Capital Assets.....		$486,851.00
OPERATING ASSETS:		
Working and Trading:		
Operating Companies....	$100,600.00	
Less 10%.....	10,060.00	
Balance 90%.....	$ 90,540.00	
Current:		
Operating Companies....	$110,871.00	
Less 10%.....	11,087.10	
Balance 90%.....	$ 99,783.90	
Holding Company.....	200,000.00	
Total Current.....	$299,783.90	
Accrued:		
Operating Company.....	$ 300.00	
Less 10%.....	30.00	
Balance 90%.....	$ 270.00	
Total Operating Assets.....		390,593.90
TOTAL ASSETS.....		$877,444.90

CAPITAL LIABILITIES:		
Capital Stock.....		$500,000.00
Funded Debt:		
Operating Companies....	$100,000.00	
Less 10%.....	10,000.00	
Balance 90%.....	$ 90,000.00	
Holding Company.....	200,000.00	
Total Funded Debt.....		290,000.00
Total Capital Liabilities.....		$790,000.00
OPERATING LIABILITIES:		
Current Debt:		
Operating Companies....	$ 36,645.00	
Less 10%.....	3,664.50	
Balance 90%.....	$ 32,980.50	
Accrued Debt:		
Operating Companies....	$ 3,000.00	
Less 10%.....	300.00	
Balance 90%.....	$ 2,700.00	
Total Operating Liabilities.....		35,680.50
SURPLUS:		
Operating Companies.....	$ 57,516.00	
Less 10%.....	5,751.60	
Balance 90%.....		51,764.40
TOTAL LIABILITIES.....		$877,444.90

CONSOLIDATED BALANCE SHEET (Method 2)

CAPITAL ASSETS.....	$485,390.00		CAPITAL LIABILITIES:		
Add for Good-Will.....	25,000.00	$510,390.00	Capital Stock: Holding Company.....	$500,000.00	
OPERATING ASSETS.....		411,771.00	Dissident Stock: 10% of Operating Companies Stock.....	25,000.00	
			Total Capital Stock.....	$525,000.00	
			Funded Debt.....	300,000.00	
			Total Capital Liabilities.....		$825,000.00
			OPERATING LIABILITIES.....		39,645.00
			SURPLUS.....		57,516.00
TOTAL ASSETS.....		$922,161.00	TOTAL LIABILITIES.....		$922,161.00

CONSOLIDATED BALANCE SHEET (Method 3)

CAPITAL ASSETS.....	$510,390.00	CAPITAL LIABILITIES:	
OPERATING ASSETS.....	411,771.00	Capital Stock.....	$500,000.00
		Funded Debt.....	300,000.00
		Dissident Stockholders.....	25,000.00
		Total.....	$825,000.00
		OPERATING LIABILITIES.....	39,645.00
		SURPLUS.....	57,516.00
TOTAL.....	$922,161.00	TOTAL.....	$922,161.00

Solution of Problem No. 7

CONSOLIDATED BALANCE SHEET OF B, C, AND A

(B and C Operating Companies - A Holding Company)

At December 31, 1918

CAPITAL ASSETS:		
Real Estate	$112,700.00	
Machinery and Machine Tools	84,000.00	
Other Plant Equipment	17,000.00	
Shop and Hand Tools	9,000.00	
Furniture and Fixtures	9,900.00	
Office Equipment	2,790.00	
Good-Will	250,000.00	
Total Capital Assets		$485,390.00
OPERATING ASSETS:		
Working and Trading:		
Finished Goods	$ 19,300.00	
Goods in Process	32,300.00	
Raw Materials	38,850.00	
Sundry Factory Supplies	10,150.00	
Total Working and Trading	$100,600.00	
Current:		
Cash	$235,441.00	
Investments in Bonds of Non-affiliated Companies	10,000.00	
Accounts Receivable	65,430.00	
Total Current Assets	$310,871.00	
Accrued:		
Interest on Investments in Securities of Non-affiliated companies	$ 300.00	
Total Operating Assets		411,771.00
TOTAL ASSETS		$897,161.00

CAPITAL LIABILITIES:		
Capital Stock:		
Preferred	$200,000.00	
Common	300,000.00	
Total	$500,000.00	
Funded Debt:		
6% First Mortgage Gold Bonds	$100,000.00	
6% Collateral Gold Bonds	200,000.00	
Total	$300,000.00	
Total Capital Liabilities		$800,000.00
OPERATING LIABILITIES:		
Current:		
Accounts Payable	$ 24,645.00	
Notes Payable	12,000.00	
Total Current Liabilities	$ 36,645.00	
Accrued:		
Interest on Bonds	$ 3,000.00	
Total Operating Liabilities		39,645.00
SURPLUS:		
Reserved:		
For Redemption of Bonds	$ 5,000.00	
" Doubtful Accounts	1,672.00	
Total Reserved	$ 6,672.00	
Free	$ 50,844.00	
Total Surplus		57,516.00
TOTAL LIABILITIES		$897,161.00

P R O B L E M N O. 8

BRANCH ACCOUNTS

PROBLEM NO. 8

BRANCH ACCOUNTS

Text of the Problem

The A B C Steamship Company, a South American line owned by a Latin American government, has established a passenger and freight service between its home ports and New York. The line owns some of the ships, and charters others as required. There is an agency in New York; the agent furnishes sundry monthly reports, but must submit yearly an account current and a statement of cash receipts and cash disbursements, both certified by an accountant. At the end of the year 1918, the books show:

TRIAL BALANCE, GENERAL LEDGER

December 31, 1918

Cash in Bank.....	$ 57,328.78	Passenger Traffic Earnings.....	$ 46,567.92
Certificates of Deposit.....	5,000.00	Inward Freight Earnings.....	1,909,502.56
Cash in Offices.....	171.24	Outward Freight Earnings.....	1,513,617.94
Receivable from U. S. Mail Department...	5,000.00	Interest on Bank Balances.....	1,920.59
Dock Equipment.....	8,857.38	Rental of Wharf.....	5,471.37
Agency Equipment....	8,354.97	Miscellaneous Fees..	65.42
Outward Freight Receivable.....	2,185.70	Excess Baggage - Passenger Service....	1,190.65
Inward Freight Receivable.....	58,478.90	Transportation of U. S. Mail.....	7,483.29
Advances to Skippers, Chartered Steamers	1,247.23	Hire of Chartered Steamers, Contested	10,400.00
Allowances on Inward Freight.....	12,655.51	Due for Coal purchased for Home Office	61,350.00
Allowances on Outward Freight.....	2,195.81	Due for Equipment purchased for Home Office.....	33,000.00
Insurance Claims Receivable.....	3,000.00		

Hire of Chartered Steamers	$ 668,187.97		$
Fuel	247,765.41		
Repairs to Steamers of Line	266,551.80		
Pay-Roll of Officers and Crews	84,648.01		
Ship Chandlery	88,350.88		
Pilotage, Towing, etc	12,740.21		
Inspection and Fumigation	5,982.86		
Victualing	66,574.88		
Oil and Engine Room Supplies	14,642.18		
Stevedoring and Derricking	60,549.38		
Water for Steamers	1,627.41		
Consulting Engineers' Fees	2,770.00		
Funeral Expenses of Sailors, Ships of the Line	3,038.04		
Claims for Shortages, Paid	2,767.85		
Consular Fees	1,793.73		
Revenue Stamps Used	2,300.00		
Brokerage and Insurance on Outward Freight	7,681.26		
Cartage	1,507.09		
Dunnage	4,545.38		
Lighterage	3,325.75		
Head Tax - Passenger Service	2,172.00		
Electric Light and Power - Docks	29,152.59		
Workmen's Compensation - Docks	3,043.12		
Dock Rent	30,000.00		
Salaries and Wages - Dock Office	22,182.81		
Dock Supplies and Expense	6,415.89		
Agency Rent	5,052.00		
Agency Salaries	27,841.00		
Telegrams and Cables - General	15,200.32		
Miscellaneous Agency Expense	6,996.48		
Interest on Loans	1,500.00		
Home Office Account	1,729,187.92		
Total	$3,590,569.74	Total	$3,590,569.74

The analysis of the Home Office account produces:

DEBITS

(1)	Remittances to Home Office.....	$ 188,404.06	
(2)	Purchase of Equipment, as per order from Home Office - Shipped.....	102,818.45	
(3)	Purchases of Coal for Home Office.....	1,385,832.87	
(4)	Outward Freight on Shipments to Home Office, credited to earnings - goods shipped by steamers of the line.....	108,417.88	
(5)	Sundry Purchases and Payments, as per Home Office orders....	9,274.05	
(6)	Overdraft, January 1, 1918.....	3,697.39	$1,798,444.70

CREDITS

(1)	Receivable for Freight Inward..	$ 13,185.25	
(2)	Receivable for Freight Outward.	14,125.32	
(3)	Agency Equipment.....	8,074.11	
(4)	Dock Equipment.....	5,404.47	
(5)	Insurance Claims Receivable....	7,394.78	
(6)	Cash Advances by Home Office...	21,072.85	69,256.78
			$1,729,187.92

During the year 1918, the company borrowed $50,000 on notes, and repaid same at the expiration of six months.

REQUIRED:

(a) The Account Current of the agency for the year.

(b) The Statement of Cash Receipts and Disbursements.

Discussion of Problem No. 8

The subject matter of this problem does not call for the application of any particular theory; the accounting involved in the keeping of the records of a branch office is of the simplest; the principal object of the problem is to introduce the form of statement known as the "Account Current."

The form of an account current is most elastic; while it must conform to the general rule of debits and credits, it depends entirely upon the analytical power, the taste for arrangement, and the sense of classification of the maker.

The bookke ping method adopted by the New York agency of the A B C Steamship Company is nothing more or less than the double-entry method. Therefore, when the agent says in his account current: "We charge ourselves and credit you," he does not mean that when recording the transactions at issue he debited the agency and credited the home office. He means that, when he debited an asset account or credited an income account, he understood that both the asset and the income elements were the property of the home office. As a matter of fact, the New York agent is only the custodian of the values entrusted to him by the A B C Steamship Company, and the administrator of the company's North American business.

All relations of this character involve, in so far at least as reports are concerned, the personalistic theory of accounts, according to the tenets of which persons should be charged or credited, instead of inanimate things, whenever agency

conditions prevail. The acceptance of this theory in so far as accounts are concerned, would lead us fatally towards the quadruple entry method of recording transactions. As this method is decidedly antagonistic to the Anglo-Saxon point of view, it is out of the question in so far as accounting is concerned, but it prevails in the matter of reports.

We say, "I charge myself"; that is, as custodian of your business wealth, I take the responsibility for your invested values at the beginning of the period, and for the increases thereof during the period, for all of which I credit you.

We say, also, "I credit myself"; that is, as custodian of your business wealth, I discharge myself with responsibility for the portion of your invested values which I have paid out for expenses, for cost of operations, for the fulfillment of your orders, for the payment of your debts, etc., etc., for all of which I charge you.

As the relations between the agent and the principal are in fact trust relations, the components of the initial balance and of the closing balance standing to the credit of the principal must be stated in full.

The problem requires no further comments.

Solution of Problem No. 8

THE A B C STEAMSHIP COMPANY

THE NEW YORK AGENCY IN ACCOUNT WITH HOME OFFICE

At December 31, 1918

WE CHARGE OURSELVES, AND CREDIT YOU:

(1) Balance to your credit at January 1, 1918:

Agency Equipment		$ 8,074.11	
Dock Equipment		5,404.47	
Accounts Receivable:			
Inward Freight	$ 13,185.25		
Outward Freight	14,125.32		
Insurance Claims	7,394.78	34,705.35	
Total		$ 48,183.93	
Deduct Bank Overdraft		3,697.39	
Balance			$ 44,486.54

(2) Earnings of the Year:

Passenger Traffic:			
Passage Money	$ 46,567.92		
Less Head Tax	2,172.00		
	$ 44,395.92		
Excess Baggage	1,190.65		
Total		$ 45,586.57	
Freight Traffic - Net:			
Inward	$1,896,847.05		
Outward	1,503,740.87		
Total	$3,400,587.92		
Less Claims for Shortages, Paid	2,767.85		
Net Freight Traffic		3,397,820.07	
Transportation of U. S. Mail		7,483.29	
Total Earnings			3,450,889.93

(3) Miscellaneous Income:

Interest on Bank Balances		$ 1,920.59	
Sundry Fees		65.42	
Total			1,986.01
(4) Remittances by You to Us			21,072.80
TOTAL WITH WHICH WE CHARGE OURSELVES AND CREDIT YOU			$3,518,435.33

WE CREDIT OURSELVES, AND CHARGE YOU:

(1) Cost of Year's Operations - Steamers:

Hire of Chartered Steamers.....	$ 666,187.97	
Fuel, Oil, Engine Room Supplies, etc.....	262,407.59	
Pay-Roll of Officers and Crews.	84,648.01	
Repairs of Steamers of the Line	266,551.80	
Fees of Consulting Engineers...	2,770.00	
Ship Chandlery.....	88,350.88	
Victualing.....	66,574.88	
Stevedoring and Derricking.....	60,549.38	
Pilotage, Towing, etc.....	12,740.21	
Inspection and Fumigation.....	5,982.86	
Water for Steamers.....	1,627.41	
Consular Fees.....	1,793.73	
Total.....		$1,522,184.72

(2) Cost of Operation of Company's Dock:

Dock Rent (Net).....	$ 24,528.63	
Dock Salaries and Wages.....	22,182.81	
Workingmen's Compensation Insurance.....	3,043.12	
Electric Light and Power.....	29,152.59	
Supplies and Expense.....	6,415.89	
Cartage.....	1,507.09	
Dunnage.....	4,545.38	
Lighterage.....	3,325.75	
Total.....		94,701.26

(3) Agency Expense:

Rent.....	$ 5,052.00	
Salaries.....	27,841.00	
Telegrams and Cables.....	15,200.32	
Funeral Expense - Sailors of the line.....	3,038.04	
Miscellaneous Expense.....	6,996.48	
Total.....		58,127.84

(4) Cost of Financing:

Interest on Bank Loans.....	1,500.00

(5) Revenue Stamps Used..... 2,300.00

(6) Purchases for Account of Home Office:

Equipment (as per your orders).	$ 102,818.45	
Coal " " " " .	1,385,832.87	
Sundry Purchases " " .	9,274.05	
Total.....		1,497,925.37

(7) Outward Freight on Purchases for Home Office:

Credited to you as earnings - sent by ships of the line, not to be collected by us.....	108,417.88

(8) Remittances to You..... 188,404.06

TOTAL WITH WHICH WE CREDIT OURSELVES AND CHARGE YOU (forward).... $3,473,561.13

TOTAL WITH WHICH WE CREDIT OURSELVES AND CHARGE YOU (forwarded)..				$3,473,561.13
		Dr.	Cr.	
(9) BALANCE TO YOUR CREDIT, AS FOLLOWS:				
Cash.....		$ 62,500.02		
Accounts Receivable:				
Insurance Claims.....	$ 3,000.00			
U. S. Mail.....	5,000.00			
Advances to Skippers of Chartered Steamers, deductible from future hire of steamers....	1,247.23			
Outward Freight Uncollected.....	2,185.70			
Inward Freight Uncollected.....	58,478.90			
Total.....		69,911.83		
Dock Equipment.....		8,857.38		
Agency Equipment.....		8,354.97		
Due for Coal purchased for Home Office.....			$ 61,350.00	
Due for Equipment purchased for Home Office.....			33,000.00	
Hire of Chartered Steamers, contested.....			10,400.00	
		$149,624.20	$104,750.00	
NET BALANCE TO YOUR CREDIT, AND TO OUR DEBIT.....				44,874.20
TOTAL.....				$3,518,435.33

THE A B C STEAMSHIP COMPANY

STATEMENT OF CASH RECEIPTS AND DISBURSEMENTS

For the Year Ended December 31, 1918

CASH RECEIPTS:			
Earnings Collected:			
Passenger Traffic:			
Passage Money	$ 46,567.92		
Excess Baggage	1,190.65		
Total Passenger Traffic		$ 47,758.57	
Freight Traffic:			
Inward Freight	$1,851,553.40		
Outward Freight	1,414,943.87		
Total Freight Traffic		3,266,497.27	
Transportation of Mail		2,483.29	
Total Earnings Collected			$3,316,739.13
Other Income Collected:			
Interest on Bank Balances		$ 1,920.59	
Rental of Wharf Facilities		5,471.37	
Miscellaneous Fees		65.42	
Total Other Income Collected			7,457.38
Bank Loans			50,000.00
Advances by Home Office			21,072.85
Insurance Claims Collected			4,394.78
TOTAL RECEIPTS FOR THE YEAR			$3,399,664.14

CASH DISBURSEMENTS:

Repayment of Overdraft at December 31, 1917		$ 3,697.39
Repayment of Bank Loan		50,000.00
Remittances to Home Office		188,404.06
Acquisition of Assets:		
Agency Equipment	$ 280.86	
Dock Equipment	3,452.91	3,733.77
Advances to Skippers - Chartered Steamers		1,247.23
Purchases for Account of Home Office:		
Equipment	$ 69,818.45	
Coal	1,324,482.87	
Sundry Purchases	9,274.05	
Total		1,403,575.37
Operations of Steamers:		
Hire of Chartered Steamers	$ 657,787.97	
Fuel	247,765.41	
Pay-Roll of Officers and Crews	84,648.01	
Ship Chandlery	88,350.88	
Victualing	66,574.88	
Repairs to Steamers of the Line	266,551.80	
Oil and Engine Room Supplies	14,642.18	
Pilotage, Towing, etc	12,740.21	
Inspection and Fumigation	5,982.86	
Stevedoring and Derricking	60,549.38	
Water for Steamers	1,627.41	
Fees of Consulting Engineers	2,770.00	
Consular Fees	1,793.73	
Total		1,511,784.72
Operation of Docks:		
Salaries and Wages	$ 22,182.81	
Rent of Dock	30,000.00	
Supplies and Expense	6,415.89	
Workingmen's Compensation Insurance	3,043.12	
Electric Light and Power	29,152.59	
Lighterage	3,325.75	
Cartage	1,507.09	
Dunnage	4,545.38	
Total		100,172.63

Agency Expense:		
Rent	$ 5,052.00	
Salaries	27,841.00	
Telegrams and Cables	15,200.32	
Funeral Expense - Sailors of the Line.	3,038.04	
Miscellaneous Expense	6,996.48	
Total		58,127.84
Deductions from Earnings:		
Head Tax - Passenger Traffic	$ 2,172.00	
Claims for Shortage - Freight Traffic.	2,767.85	
Brokerage and Insurance on Outward Freight	7,681.26	12,621.11
Revenue Stamps Used		2,300.00
Interest on Loans Payable		1,500.00
TOTAL DISBURSEMENTS		$3,337,164.12
BALANCE AT DECEMBER 31, 1918:		
In Bank - Checking Accounts	$ 57,328.78	
In Bank - Certificates of Deposit	5,000.00	
In Office	171.24	
Total Balance		62,500.02
TOTAL DISBURSEMENTS AND BALANCE		$3,399,664.14

P R O B L E M N O. 9

STATEMENTS OF AFFAIRS, DEFICIENCY, ETC., FOR CONCERNS IN FINANCIAL DIFFICULTIES

PROBLEM NO. 9

STATEMENTS OF AFFAIRS, DEFICIENCY, ETC., FOR CONCERNS IN FINANCIAL DIFFICULTIES

Text of the Problem

The creditors of the A K Export Sales Company, believing that the said company is in financial distress, have employed accountants to examine the affairs of the concern, and to report to the creditors' committee as to the advisability of extending further credit, or starting proceedings in bankruptcy. The A K Company had accepted the conditions, and the accountants began work on January 3, 1919.

After completing the necessary postings, they established the following trial balance:

TRIAL BALANCE OF THE A K EXPORT SALES COMPANY

At December 31, 1918

Good Will.....	$ 60,000.00	Capital Stock Preferred.....	$ 100,000.00
Inventory, July 1, 1918.....	294,366.89	Capital Stock Common	50,000.00
Furniture, Fixtures and Equipment.....	7,663.65	Bank Loans.....	269,801.51
Cash in Offices.....	1,000.00	Notes Payable.....	81,181.92
" " Bank.....	15,908.63	" " - Liberty Loans.....	24,500.00
Accounts Receivable.	106,775.12	Accounts Payable....	59,043.16
Claims.....	22,217.65	Commissions Accrued.	7,126.86
Liberty Bonds.....	35,000.00	Interest Accrued on Loans.....	1,577.68
Purchases.....	1,025,245.56	Sales.....	1,254,027.91
Freight, Cartage and Storage.....	199,141.70	Interest on Liberty Bonds.....	320.00
Insurance.....	11,582.65	Reserved for Doubtful Accounts.....	1,376.10
Sell'g Off. Salaries	8,142.25	Reserved for Claims.	11,860.66
" " Expense.	1,708.97	Surplus.....	133,656.84
" " Com's...	13,803.92		
" " Brokerage	2,476.01		
" " Free Samples	132.90		

Sell'g Off.	Teleph., Teleg., Cables.	$ 9,270.56	
" "	Advertising....	483.29	
" "	Rent & Light..	962.50	
" "	Traveling Exp....	1,208.97	
" "	Postage.	522.68	
Exec. Off.	Salaries	31,123.60	
" "	General Exp....	1,686.64	
" "	Postage.	699.81	
" "	Teleph., Teleg., Cables, etc....	2,624.43	
" "	Entertaining Exp.	110.13	
" "	Rent & Light..	925.00	
" "	Traveling Exp....	2,234.67	
Development Advances - Foreign Branches		95,697.13	
Allowances on Sales.		2,096.40	
Bank Interest.....		7,042.18	
Bank Commissions....		4,305.04	
Legal Expense.....		7,725.25	
Notes Receivable....		19,968.46	
Due by Company's Officers.....		300.00	
Accrued Interest on Investments.....		320.00	
Total Debits....		$1,994,472.64	Total Credits... $1,994,472.64

From a day-book kept by the A K Company, purporting to be a running history of all the transactions affecting merchandise, the accountants are able to obtain the inventory at December 31, 1918; it amounts to $421,042.84 and is made up of metals, tin plate, chemicals, hardware, etc. An extensive analysis would have produced classified purchases, closing inventory, and sales; but as the original inventory

could not be treated similarly, and as, further, the departmental expenses were not segregated, the non-departmentalized figures were accepted.

The analytical examination of the books, records, and accounts discloses the following:

Good-Will - Paid for by issue of preferred stock to the present officers of the company who originated the business and conducted it as a copartnership prior to incorporation. Dividends on preferred stock for 12 months ended July 1, 1918 amounted to $75,000, which were paid in cash; besides this, a cash dividend of $30,000 was paid July 15, 1918.

Federal Taxes - Paid in the period ended June 30, 1918, in one instalment.

Inventory -

(a) Pledged to secure bank loans, the banks holding:

Trust receipts on railroad bills of lading	$202,902.87
Lighter receipts	15,100.00
Warehouse receipts	60,950.10
	$278,952.97
(b) Unpledged	142,089.87
	$421,042.84

Notes Payable - Contain $45,000 demand notes held by bank without collateral. The notes are endorsed by the president of the company in his individual capacity as sole owner of a manufacturing plant in Connecticut; the balance were issued to creditors for merchandise; they are due February 15.

Claims - Amount compensated by reserve is subject to lawsuits for collection; this is true, in fact, of the whole amount of the claims account. Counsel reports the basis to be of a doubtful value from the legal standpoint.

Accounts Receivable - Amount compensated by reserve is still in doubt, with the presumption against collection. The control account conceals, besides, $5,000 of advances to a promoter operating in China. This may be lost.

Notes Receivable - Contain a $3,000 note given by a former employee of the company, to cover theft of material; the note is due in February, 1919, but information is at hand that it will probably not be paid.

Development Expenses, Foreign Branches - Has been carried as an asset for over one year. It represents, in reality, advances to foreign correspondents for the purpose of establishing agencies. The war in Europe having killed all prospects, the whole amount is undoubtedly worthless.

General - Some of the goods shipped in prior periods are still held at Pacific Coast points for transshipment to India, China, and Japan. Demurrage, storage, handling charges, etc., have accumulated to date to the extent of $8,500. The liability has not been recorded but must be met. The goods themselves are subject to losses which, however, cannot be estimated.

The unpledged portion of the inventory contains sundry lots which cannot be pledged, owing to their undesirable nature. It is doubtful that some of them could be sold for cost. Altogether, it is estimated by experts that the company will have to sacrifice about $31,000 of value in order to bring about sales.

Through a direct violation of the regulation of the War Trade Board, the company has been fined $25,000, the notice having reached the office of the company on the day the accountants began their examination. Two notes have been issued for $12,500 each; they are payable January 15 and February 15, 1919. The violation took place in January, 1918.

The furniture and fixtures have not been depreciated at any time; they are, however, practically new. If the company liquidated, they might produce $3,000.

In due course, the accountants present to the committee of creditors a report accompanied by:

(a) A Statement of Operating Income.
(b) A Balance Sheet on the basis of a going concern.
(c) A Reconciliation of the Surplus at December 31, 1918.
(d) A Statement of Affairs, on the basis of liquidation.
(e) A Deficiency Account.

Prepare the said statements, including the report.

Discussion of Problem No. 9

The statement of affairs, which is one of the exhibits to be established, has a well-defined purpose, viz.: to present the financial status of a concern on the basis of liquidation.

Its use is limited to creditors' committees and to trustees, receivers, assignees, taking charge of the affairs of a concern financially embarrassed. When prepared for creditors' committees, it antedates any action to be taken by the creditors; it serves as a basis for their judgment. When prepared for trustees, it gives a graphic outline of the conditions that the trustees are likely to meet.

The statement differs from a balance sheet in that:

1. It deals only with such liabilities as affect outsiders; and, as to assets, uses as much as possible market or probable values.

2. It deducts all fully secured claims from the assets pledged as securities therefor.

3. It deducts partial pledges from the liabilities which they secure in part only.

4. It deducts preferred claims from the sum of the asset equities.

5. It shows as liabilities only such an amount of them as is totally unsecured.

6. It is a perfect statement of equities. Having applied all the preferred or secured debts and shown as a result unencumbered assets, it states how much of that free fund the unsecured creditors will receive, and what percentage of their claims the equity will produce.

The statement of affairs is no more complete by itself than is the balance sheet. The latter expresses financial

status, and requires a statement of income to show the causes which brought about the favorable or unfavorable changes in the status. The statement of affairs expresses equities, and surplus of unencumbered values over outside equities, or deficiency of unencumbered values to meet outside equities. It requires, to be complete, a statement which shows the causes which have contributed to the losses, and who will stand said losses. This statement is called the deficiency account.

The name of the account indicates its character. If it is an account with deficiency, it must account for it; to account for it, it must be analytical; to be analytical, it must classify the losses according to their power as conveyers of information intended to guide judgment.

If creditors ask for information in anticipation of a step to be taken, the nature of which will depend upon the type of the information received, the account must classify the losses as follows:

1. Losses to be sustained through the action of the creditors; that is to say, losses which would not materialize if the company remained a going concern but which will be incurred if liquidation takes place.

2. Losses, or gains, from operations.

3. Impairment of capital.

None of the above classes is less important than the other. If a company operates at a profit, and loses its profits through mismanagement, in whatever form it may occur, it may be well to cause the appointment of a receiver who will rehabilitate the concern. Creditors are not vindictive; all they want

is the security of their claims. If such a security can be had without injury to the debtors, all is well; in the contrary case, more drastic steps will have to be taken. A company which operates at a loss, impairs its capital through mismanagement, and attempts to misrepresent conditions, is entitled to scant sympathy. A company which operates at a profit, but is unable to use said profits for the redemption of debts because, to keep abreast of too rapid a development, it must reinvest all profits in the face of insufficient capitalization, may offer an opportunity for further assistance by its very creditors. All this must be ascertained by the accountant. Nothing will give him a cue as to the conditions but the thorough analysis of the facts at issue and the scientific rearrangement of the analytical components.

Having classified the losses, the deficiency account must show who will sustain them. In the case of this problem, it turns out that all the creditors are fully protected provided no more losses are incurred than appear to be possible. The statement of affairs ends with a surplus of more than $86,000 over and above all outside claims; on the surface this might indicate that the company is solvent. And yet, when the deficiency account has been established, it turns out that, within six months, the company has lost all its appropriated surplus, all its free surplus of past periods, all its operating surplus of the present period, and nearly one-half of its capital stock. To have shown the losses through the medium of an account which would have collated them at random, and then to have failed to show what they represent

from the viewpoint of the stockholders, would have been a pitiful performance.

As to the form that the statement of affairs must assume, there exists no particular theory. It can be left to the individual taste or to the power of expression of the accountant preparing it.

Generally speaking, it is similar in form to the balance sheet. It exhibits the assets on the left, the liabilities on the right. As much as possible, the assets are put down in the order of their liquidity; the liabilities are classified as to their preference, security, or lack of security. But, as liabilities must be deducted from assets, and sometimes assets from liabilities, the following form has been found convenient.

A S S E T S I D E

ITEMS	Book Value	Expected to Realize	
Investments.....	$125,000.00	$123,000.00	
Deduct Liability for Loans secured by investments....		95,000.00	
Balance.....	.....	.....	$28,000.00

L I A B I L I T Y S I D E

ITEMS	Book Amount	Deductions	Unsecured Liabilities

Solution of Problem No. 9

The A K Export Company

Exhibit "A"

GENERAL BALANCE SHEET - DECEMBER 31, 1918

CAPITAL ASSETS:

Good-Will	$ 60,000.00	
Furniture and Equipment	7,663.65	
Total Capital Assets		$ 67,663.65

OPERATING ASSETS:

Trading:		
Inventory - Pledged	$278,952.97	
Inventory - Unpledged	142,089.87	
Total Trading	$421,042.84	
Current:		
Cash in Bank and Offices	$ 16,408.83	
Accounts Receivable:		
From Customers	106,775.12	
From Officers	300.00	
Claims Receivable	22,217.65	
Promissory Notes	19,908.46	
Investments in Liberty Bonds	35,000.00	
Total Current	$201,180.86	
Accrued:		
Interest on Investments	$ 320.00	
Total Operating Assets		622,532.70
TOTAL ASSETS		$690,196.35

CAPITAL LIABILITIES:

Capital Stock Preferred	$100,000.00	
Capital Stock Common	50,000.00	
Total Capital Liabilities		$150,000.00

OPERATING LIABILITIES:

Current:		
Bank Loans Payable	$269,801.51	
Notes Payable:		
To Creditors for Merchandise	81,181.92	
For Liberty Loans	24,500.00	
Accounts Payable:		
To Creditors for Merchandise	59,043.16	
To War Trade Board for fine	25,000.00	
Total Current	$459,526.59	
Accrued:		
Commissions - Employees	$ 7,123.86	
Interest	1,577.68	
Freight, Demurrage, Port Charges, etc	8,500.00	
Total Accrued	$ 17,204.54	
Total Operating Liabilities		476,731.13

SURPLUS:

Appropriated:		
For Inventory Losses	$ 31,000.00	
" Claims	22,217.65	
" Accounts Receivable	5,376.10	
" Notes Receivable	3,000.00	
Total Appropriated	$ 62,593.75	
Free	871.47	
Total Surplus		63,465.22
TOTAL LIABILITIES		$690,196.35

THE A K EXPORT SALES COMPANY

Exhibit "B"

STATEMENT OF OPERATING INCOME

For the Six Months Ended December 31, 1918

INCOME FROM SALES:		
Gross Sales	$1,254,027.91	
Less Allowances for Defective Goods	2,096.40	
Net Sales		$1,251,931.51
COST OF GOODS SOLD:		
Inventory at July 1, 1918	$ 294,386.89	
Purchases of the period	1,025,245.56	
Merchandise Available for Sale	$1,319,612.45	
Freight, Cartage, Insurance, etc., on Merchandise	210,724.35	
Total Cost of Goods Available for Sale	$1,530,336.80	
Inventory Adjustment:		
Deduct Inventory at December 31, 1918	421,042.84	
Cost of Goods Sold		1,109,293.96
GROSS PROFIT ON SALES		$ 142,637.55
COMMERCIAL EXPENSES:		
Selling Office:		
Salaries	$ 8,142.25	
General Expense	1,708.97	
Selling Commission	13,803.92	
Brokerage	2,476.01	
Samples distributed free	132.90	
Telephone, Telegrams, and Cables	9,270.56	
Advertising	483.29	
Rent and Light	962.50	
Traveling Expense	1,208.97	
Postage	522.68	
Total Commercial Expense		38,712.05
COMMERCIAL PROFIT		$ 103,925.50
ADMINISTRATION AND GENERAL EXPENSE:		
Administration:		
Executive Office:		
Salaries	$ 31,123.60	
Postage	699.81	
Telephone, Telegrams, and Cables	2,624.43	
Entertaining	110.13	
Rent and Light	925.00	
Traveling	2,234.87	
Miscellaneous	1,686.64	
Total Administration	$ 39,404.28	
General:		
Legal Expense	$ 7,725.25	
Bank Interest, etc. (Net)	11,027.22	
Total General	$ 18,752.47	
Total Administration and General Expense		58,156.75
PROFIT FROM OPERATIONS		$ 45,768.75

THE A K EXPORT SALES COMPANY

Exhibit "C"

RECONCILIATION OF SURPLUS

At December 31, 1918

APPROPRIATED SURPLUS:			**APPROPRIATED SURPLUS:**		
1918			1918		
Dec. 31	Balance (carried down).....	$ 62,593.75	July 1	Balance:	
				Reserved for Doubtful Accounts.....	$ 1,376.10
				Reserved for Claims.....	11,860.66
				Balance.....	$ 13,236.76
			Dec. 31	Increase of Appropriations:	
				Reserved for Doubtful Accounts.....	$ 5,000.00
				" " Notes Receivable.....	3,000.00
				" " Claims.....	10,356.99
				" " Trading Goods.....	31,000.00
				Total Increase of Appropriations...	$ 49,356.99
		$ 62,593.75	Dec. 31	TOTAL APPROPRIATED SURPLUS.....	$ 62,593.75
FREE SURPLUS:			**FREE SURPLUS:**		
1918			1918		
July 15	Cash Dividends on Preferred Stock.....	$ 30,000.00	July 1	Balance.....	$168,856.84
Dec. 31	Losses of Capital:		Dec. 31	Operating Profits for six months.....	45,768.75
	Advances to Foreign Branches.....	95,697.13			
	Fine, War Trade Board.....	25,000.00			
	Demurrage, Freight, etc., on goods shipped in prior periods.....	8,500.00			
	Total.....	$159,197.13			
	Provisions for Losses:				
	Accounts Receivable.....	$ 5,000.00			
	Notes Receivable.....	3,000.00			
	Claims.....	10,356.99			
	Trading Goods.....	31,000.00			
	Total.....	$ 49,356.99			
Dec. 31	Balance of Free Surplus (carried down)...	871.47			
		$209,425.59			$209,425.59
			1918		
			Dec. 31	Appropriated Surplus (brought down)....	$ 62,593.75
				Free Surplus (brought down)..	871.47
				TOTAL SURPLUS (as per Exhibit "A").....	$ 63,465.22

THE A K EXPORT SALES COMPANY

Exhibit "D"

STATEMENT OF AFFAIRS AT DECEMBER 31, 1918

A S S E T S	Book Value	Expected to Realize
LIQUID ASSETS:		
Cash in Bank & Offices.	$ 16,908.63	$ 16,908.63
Accounts Receivable....	107,075.12	100,699.02
Claims Receivable.....	22,217.65	--- --
Notes Receivable.....	19,968.46	16,968.46
Investments - Liberty Bonds.....	35,000.00	$ 35,000.00
Less Due on Notes.....		24,500.00
Company's Equity.....		10,500.00
Total Liquid Assets....	$201,169.86	$145,076.11
OPERATING ASSETS:		
Inventory of Merch.....	$421,042.84	$390,042.84
Deduct Pledged to Banks on Documents.		269,801.51
Company's Equity.....		$120,241.33
Total Operating Assets.	$421,042.84	$120,241.33
ACCRUED ASSETS:		
Interest on Liberty Bonds.....	$ 320.00	$ 320.00
Total Accrued Assets...	$ 320.00	$ 320.00
CAPITAL ASSETS:		
Good-Will.....	$ 60,000.00	$ --- --
Furniture & Fixtures...	7,663.65	3,000.00
Total Capital Assets...	$ 67,663.65	$ 3,000.00
TOTAL REALIZABLE.....		$268,637.44
DEDUCT PREFERRED CLAIMS.....		40,626.86
Balance for distribution to Unsecured Creditors, representing 100% of their Claims, and Surplus over.....		$228,010.58

L I A B I L I T I E S	Book Amount	Deductions	Unsecured Liabilities
PREFERRED CLAIMS:			
Due to War Trade Board.	$ 25,000.00		
Due to Employees.....	7,126.86		
Carriers' Liens on Shipments in Transit.....	8,500.00		
Deducted from amount realizable from Assets.....		$ 40,626.86	$ --- --
Total Preferred Claims.	$ 40,626.86	$ 40,626.86	$ --- --
FULLY SECURED CLAIMS:			
Bank Loans.....	$269,801.51		
Deducted from Asset pledged.....		$269,801.51	$ --- --
Liberty Bonds.....	24,500.00		
Deducted from Asset pledged.....		24,500.00	--- --
Total Fully Secured Loans.....	$294,301.51	$294,301.51	$ --- --
UNSECURED CLAIMS:			
Notes Payable to Creditors.....	$ 81,181.92		$ 81,181.92
Accounts Payable to Creditors.....	59,043.16		59,043.16
Interest.....	1,577.68		1,577.68
Total Unsecured Claims.	$141,802.76		$141,802.76
SURPLUS OF ASSETS OVER ALL LIABILITIES TO OUTSIDERS.....			$ 86,207.82
TOTAL UNSECURED CLAIMS, AND SURPLUS.....			$228,010.58

THE A K EXPORT SALES COMPANY

Exhibit "E"

DEFICIENCY ACCOUNT

LOSSES INCIDENT TO LIQUIDATION:

Furniture and Fixtures	$ 4,663.65
Good-Will	60,000.00
Total	$ 64,663.65

IMPAIRMENT OF CAPITAL:

Uncollectible Accounts:	
Notes Receivable - Employees	$ 3,000.00
Customers' Accounts	1,376.10
Claims against Customers	22,217.65
Advances to Foreign Agents and Promoters	100,697.13
Fine - War Trade Board	25,000.00
Depreciation of Merchandise	31,000.00
Accumulated Demurrage, Freight, Port Charges, etc., on goods sold and shipped in prior periods	8,500.00
Total	$141,790.88
TOTAL LOSSES	$256,454.53

LOSSES TO BE SUSTAINED BY STOCKHOLDERS, AS FOLLOWS:

(1) Appropriated Surplus of prior periods	$ 13,236.76
(2) Free Surplus of prior periods	133,656.84
(3) Operating Profits of prior periods	45,768.75
(4) 42.52% of their Capital Stock	63,792.18
	$256,454.53

THE A K EXPORT SALES COMPANY

REPORT OF THE ACCOUNTANTS TO THE CREDITORS' COMMITTEE

Gentlemen:

In accordance with your request, we have examined the books, records, and accounts of the A K Export Sales Company, for the purpose of ascertaining the financial status of the concern as at December 31, 1918, in order that we may advise your committee as to the steps which might be taken to safeguard your interests.

Attached to this report, you will find the following exhibits:

"A" General Balance Sheet at December 31,1918 - basis of a going concern.

"B" Statement of Operations for the six months ended December 31,1918.

"C" Reconciliation of the Surplus at December 31,1918.

"D" Statement of Affairs - basis of assumed liquidation.

"E" Deficiency Account - basis of assumed liquidation.

The financial condition of the company appears quite unfavorable, even from the viewpoint of Exhibit "A." The free surplus is insignificant, and the appropriated surplus is seriously threatened by the probability of the losses for which it provides. It is our impression, gathered from our own observation and from the opinion of experts, that the portion of the unsold goods which is not pledged to banks as a security for loans has suffered a depreciation of $31,000. While there appears to be little doubt that the loss will materialize in the event of liquidation, still, if the company continues as a going concern the certainty is more remote, and therefore we have been satisfied to set aside surplus earnings instead of deducting the amount from the asset. The same general uncertainty concerning the losses of claims, promissory notes, and accounts receivable, has made advisable a further appropriation of profits, in the amount of $31,593.75. So far as the free surplus is concerned, the company has lost in six months $84,299.85 of the amount accumulated in prior periods; this represents the difference between the initial balance of $163,656.84 and a sum made up of dividends $30,000 and appropriations for possible losses $49,356.99, i.e., $79,356.99. Besides, the whole of the operating profits of the period of six months ended December 31. 1918, has been lost, with the exception of $871.47.

As to this balance, it would have been practically lost had the asset, furniture, fixtures, etc., been depreciated.

The management of the company has, from the financial standpoint, been deplorable. In the period of eighteen months, the stockholders have distributed to themselves $105,000 of profits under the form of dividends, thereby compelling the so-called reinvested surplus to absorb the losses which the company carried under the disguise of assets. There must have existed in the minds of the directors at least a suspicion that the advances to foreign agents and promoters might be productive of little results. The thought must have come to them that shipping conditions were so severe as to greatly endanger profits; having grown up with the war, they might at least have feared that they might go down with it. And yet, they declared and paid cash dividends, drained the company of its resources, hypothecated all they could, and left to others the care of financing the company.

So far as the creditors are concerned, Exhibits "D" and "E" (the statement of affairs and its complement, the deficiency account) being established on the basis of assumed liquidation, present the situation of the A K Export Sales Company in a far truer light than does Exhibit "A." If you were to force the company into bankruptcy, and it were to realize all its assets at the values given in Exhibit "D" (which appears to be the probability), the company could pay all its debts to outsiders dollar for dollar, and there would be a surplus of approximately $86,000 to take care of the stockholders. The loss, such as it would be, would fall on them; liquidation would impose upon them only: first, the loss represented by the difference between the cost of their furniture and fixtures (that is to say, the replacement value as a going concern) and the probable value at a forced sale; second, the loss of the goodwill which has an asset value only so far as the concern remains in business and, in this instance, cannot be sold.

The other losses, referred to as "Impairment of Capital," are due either to mismanagement or to errors of policy, and will occur whether or not you take drastic action.

If the company is forced into liquidation, the stockholders will have lost all past undivided profits, all appropriated surplus, all the earnings of the period, and, besides, 42.52% of their capital stock.

The company's business has been profitable, and may even have possibilities for greater profits if properly managed. But, at the rate liabilities for, and losses due to, past errors are materializing, it will not take long before your present equity in the assets is jeopardized.

That you must take steps to prevent such an occurrence

is beyond question. As to what these steps must be, you alone can decide; but, in any event, it appears to us that the present administration must be replaced by a more conservative one - a receiver, for instance, who would operate the company for a year, re-establish its credit, and turn it back to its present stockholders free from the threat of disaster.

(Signed).....

P R O B L E M N O. 10

STATEMENTS EXPRESSIVE OF THE RESULTS OF THE VOLUNTARY WINDING UP OF CORPORATE ACTIVITIES

PROBLEM NO. 10

STATEMENTS EXPRESSIVE OF THE RESULTS OF THE VOLUNTARY WINDING UP OF CORPORATE ACTIVITIES

(Adapted from the New York C.P.A. Examination of June, 1912)

Text of the Problem

The following is the trial balance of the Rawdeal Company, June 1, 1911, on which day the directors of the company resolve that the secretary of the company be authorized to call a meeting of the stockholders to vote on the immediate dissolution of the company:

Land, Building and Equipment	$ 55,000.00	Bond Secured by Mortgage 6%	$ 26,000.00
Machinery and Machine Tools	35,000.00	Interest Accrued on Bond Secured by Mortgage	312.00
Shop and Hand Tools (in store)	5,000.00	Accounts Payable	21,700.00
Furniture and Personalty Fixtures	9,700.00	Reserve for Depreciation of Building	5,300.00
Raw Materials and Freight thereon	10,350.00	Reserve for Depreciation of Machinery	9,000.00
Accounts Receivable	23,400.00	Reserve for Depreciation of Furniture and Fixtures	4,100.00
Cash in Bank and in Offices	11,320.00	Surplus	23,358.00
		Capital Stock Authorized, Issued and Outstanding	60,000.00
	$149,770.00		$149,770.00

The stockholders' meeting was held on July 1, 1911, and the dissolution took place. The company sold the land and the building and its equipment to the mortgagee for $44,000. On September 1, 1911, the cash book showed:

Debits: Building and Realty Fixtures $17,454; Machinery $25,340; Shop and Hand Tools $2,100; Furniture and Fixtures $3,700; Raw Materials $7,950; Accounts Receivable $23,130.

Credits: Accounts Payable $21,700; Expenses $1,530.20.

REQUIRED:

(a) A Statement of Realization and Liquidation, showing the per cent received by the stockholders on their holdings.

(b) The Journal Entries affecting the dissolution of the company.

Discussion of Problem No. 10

This problem presents the simplest form of the realization and liquidation statement. In fact, it asks only for a classified presentation of the entries made in the books of account - a copy of the ledger accounts, if you care to express it in that way. The required statement is, indeed, nothing more than a copy.

Assume that, instead of allowing the individual accounts with assets and liabilities to remain undisturbed until the assets have been sold and the liabilities liquidated, the officer of the company in charge of the winding up of its affairs has exercised the option of closing all the accounts with the exception of:

Cash	Surplus
Realization and Liquidation	Capital Stock

To carry out his purpose, he would have to close all assets other than cash to the debit, and all liabilities to outsiders to the credit, of the group account Realization and Liquidation. This latter account is, therefore, a species of inventory account, with positive values on the left and negative values on the right, giving as a result the net sum of assets which the officer in charge must account for. It follows that, to account for that mixed inventory, he will have to credit the account with: (1) what he receives for the assets; (2) what he loses through his failure to collect in full or to sell at book

value; (3) any asset uncollectible or unsalable, which he returns to the stockholders to be disposed of by them. Further, he will have to debit the account with: (1) the amount paid for the liquidation of debts; (2) the amount of debts unliquidated.

As, in his accounting, he must apply the rules of bookkeeping by the double-entry method, he debits Cash with the proceeds of the collections or sales; debits Surplus with losses; credits Cash with the consumption of cash for the payment of debts, the payments for expenses which he debits to Surplus, and the payment of dividends to stockholders which he also debits to Surplus. This latter account is also debited with the amount of any new liability incurred during liquidation.

Had the officer in charge of winding up the corporation elected not to raise an account with realization and liquidation, which is certainly what he would do, he would have debited Cash or Surplus and credited the assets, and, correspondingly, credited Cash and debited liabilities or Surplus.

Therefore, no matter what plan the officer in charge of winding up the corporation may have adopted, his procedure is eternally the same, and we, as accountants, must be able to follow his plan item by item, and present the results in any manner which may be required of us.

We could take asset after asset, liability after liability, and, in narrative form, express precisely what happened to each value. Therefore, we can do the same thing in account form and say:

The officer in charge is to account for:

1. The assets which existed as at the day he took charge, as inventoried by the balance sheet.

2. The assets unknown as at the day he took charge, but subsequently ascertained to exist.

3. All liabilities which existed as at the day he took charge, as inventoried by the balance sheet.

4. The liabilities unknown as at the day he took charge, but subsequently ascertained to exist.

As to the gains or losses which he may have made or incurred, the officer merely credits or debits the stockholders with them in their corporate account Surplus. This is also true of expenses.

Remember that in all the foregoing discussion we have never applied the term trustee to the officer in charge of the company's liquidation. Had we done so, we would unwittingly have committed ourselves to the use of an entirely different form of reporting, similar to the form adopted in Problem No. 11 which follows.

The officer of the Rawdeal Company who has attended to the matters at issue has had nothing to do with the courts. He is not a trustee in the legal sense of the word, and therefore he is not bound by any court procedure. His accounting is that of the average bookkeeper. When reporting upon his work we merely examine his accounts, and recite all the debits and all the credits which he has made thereto. Nothing can be simpler.

As to the technique of his work, it depends essentially upon ourselves; it may very well be, for instance, that, instead

of deducting the reserves for depreciation of physical assets from the assets themselves, we may prefer to return them to surplus from which they came, and allow them to offset therein the policy of the losses on undepreciated book value which is compensated by a reserve. This is essentially a matter of personal taste or opinion.

As to form, the division of the statement among its components:

1. Inventories
2. Accounting for Assets and Liabilities to Outsiders
3. Accounting for Liabilities to Stockholders
   (a) Surplus
   (b) Capital Stock

appears to be the simplest, the clearest, and the most logical one. I have no doubt that in this, as in every other accounting matter involving the theory of form, there will be as many opinions as there are accountants. The more the merrier, since we are all trying to be useful in our humble way, according to our lights.

ASSETS TO BE ACCOUNTED FOR:

(1) Cash Balance.....

(2) To be Realized:
Land, Building & Equipment
Machinery and Machine Tools
Shop and Hand Tools.....
Furniture & Personalty Fix.
Raw Materials.....
Accounts Receivable.....

Total to be Realized.....

TOTAL ASSETS TO BE ACCOUNTED FOR...

LIABILITIES ACCOUNTED FOR:

Liabilities Liquidated:

(1) In Cash:
Accounts Payable.....

(2) Through Sale of Pledged Ass
Bond and Mortgage.....
Interest on Mortgage.....

Total.....

TOTAL LIABILITIES ACCOUNTED FOR.....

Additional Interest on Mortgage.....

Losses on Realization of Assets:
Accounts Receivable.....
Land, Building, and Equipment.....
Machinery and Machine Tools.....
Shop and Hand Tools.....
Furniture and Personalty Fixtures.
Raw Materials.....

Expenses of Liquidation, Paid in Cas

Dividend of 12.94% Paid in Cash.....

Paid in Cash, 100% of Holdings.....

Solution of Problem No. 10

STATEMENT OF THE LIQUIDATION OF THE AFFAIRS OF THE RANDEAL COMPANY

As of September 1, 1911

SECTION I - INVENTORIES

ASSETS TO BE ACCOUNTED FOR:		LIABILITIES TO BE LIQUIDATED:	
(1) Cash Balance	$ 11,320.00	(1) Outstanding at June 1, 1911:	
(2) To be Realized:		Bond Secured by Mortgage	$ 26,000.00
Land, Building & Equipment (Depr. deducted $5,300)	$ 49,700.00	Interest on Mortgage	312.00
Machinery and Machine Tools " " $9,000)	26,000.00	Accounts Payable	21,700.00
Shop and Hand Tools	5,000.00	Total Outstanding at June 1, 1911	$ 48,012.00
Furniture & Personalty Fix.(Depr. deducted $4,100)	5,600.00		
Raw Materials	10,350.00	(2) Incurred during Liquidation:	
Accounts Receivable	23,400.00	Additional Interest on Bond & Mortgage	234.00
Total to be Realized	$120,050.00		
TOTAL ASSETS TO BE ACCOUNTED FOR	$131,370.00	TOTAL LIABILITIES TO BE LIQUIDATED	$ 48,246.00

SECTION II - ACCOUNTING

LIABILITIES ACCOUNTED FOR:		ASSETS ACCOUNTED FOR:	
Liabilities Liquidated:		(1) Cash Balance at June 1, 1911	$ 11,320.00
(1) In Cash:		(2) Assets Realized:	
Accounts Payable	$ 21,700.00	(a) In Cash:	
(2) Through Sale of Pledged Assets:		Land, Building, and Equipment	$ 17,454.00
Bond and Mortgage	$ 26,000.00	Machinery and Machine Tools	25,340.00
Interest on Mortgage	546.00	Shop and Hand Tools	2,100.00
Total	$ 26,546.00	Furniture and Personalty Fixtures	3,700.00
		Raw Materials	7,950.00
		Accounts Receivable	23,130.00
		Total Realized in Cash	$ 79,674.00
		(b) Through Liquidation of Secured Liabilities:	
		Building and Realty Fixtures	$ 26,546.00
		Total Realized	$117,540.00
		(3) Assets Lost:	
		Accounts Receivable	$ 270.00
		Land, Building, and Equipment	5,700.00
		Machinery and Machine Tools	660.00
		Shop and Hand Tools	2,900.00
		Furniture and Personalty Fixtures	1,900.00
		Raw Materials	2,400.00
		Total Losses	$ 13,830.00
TOTAL LIABILITIES ACCOUNTED FOR	$ 48,246.00	TOTAL ASSETS ACCOUNTED FOR	$131,370.00

SECTION III - SURPLUS

Additional Interest on Mortgage	$ 234.00	Balance at June 1, 1911	$ 23,358.00
Losses on Realization of Assets:			
Accounts Receivable	270.00		
Land, Building, and Equipment	5,700.00		
Machinery and Machine Tools	660.00		
Shop and Hand Tools	2,900.00		
Furniture and Personalty Fixtures	1,900.00		
Raw Materials	2,400.00		
Expenses of Liquidation, Paid in Cash	1,530.20		
Dividend of 12.94% Paid in Cash	7,763.80		
	$ 23,358.00		$ 23,358.00

SECTION IV - CAPITAL STOCK

Paid in Cash, 100% of Holdings	$ 60,000.00	Balance at June 1, 1911	$ 60,000.00

PRO FORMA JOURNAL ENTRIES

6/1/11 At a meeting of the Board of Directors held this day, it was resolved:

"That the secretary be and is hereby authorized to call a special meeting of the stockholders, for the purpose of considering a proposition to dissolve the Rawdeal Company at once."

7/1/11 The stockholders of the Rawdeal Company having been apprised of the above resolution of the Board of Directors and notified, both by mail and by publication, that a meeting would be held on July 1, 1911, the meeting was duly held on this day, and it was resolved that the company be dissolved forthwith. Accordingly, the secretary was instructed to file the proper papers with the Secretary of State.

In accordance with the above resolutions, the company has been dissolved, and the following entries are made to reflect the transactions incident to the dissolution.

No. 1

Reserve for Depreciation of Building and Equipment	$ 5,300.00	
Reserve for Depreciation of Machinery	9,000.00	
Reserve for Depreciation of Furniture and Fixtures	4,100.00	
To Land, Building and Equipment		$ 5,300.00
" Machinery and Machine Tools		9,000.00
" Furniture and Fixtures		4,100.00

To apply reserves accumulated in prior periods.

No. 2

Realization and Liquidation	$120,050.00	
To Land, Building, and Equipment		$49,700.00
" Machinery and Machine Tools		26,000.00
" Shop and Hand Tools		5,000.00
" Furniture and Personalty Fixtures		5,600.00
" Raw Materials		10,350.00
" Accounts Receivable		23,400.00

For assets other than cash, to be accounted for.

No. 3	Bond and Mortgage.....	$26,000.00	
	Interest on Mortgage.....	312.00	
	Accounts Payable.....	21,700.00	
	To Realization and Liquidation		$48,012.00

For liabilities outstanding at June 1, 1911, to be accounted for.

No. 4	Surplus.....	$ 234.00	
	To Realization and Liquidation		$ 234.00

For additional liability for interest on mortgage, incurred during liquidation.

No. 5	Cash.....	$79,674.00	
	To Realization and Liquidation		$79,674.00

For receipts through sales of assets, as follows:

Land, Building and Equipment.....	$17,454.00
Machinery and Machine Tools.....	25,340.00
Shop and Hand Tools....	2,100.00
Furniture and Personalty Fixtures.....	3,700.00
Raw Materials.....	7,950.00
Accounts Receivable....	23,130.00

No. 6	Realization and Liquidation.....	$26,546.00	
	To Realization and Liquidation		$26,546.00

For realization of part of the value of the land, building, and equipment through the application of the proceeds thereof to the liquidation of:

Mortgage.....	$26,000.00
Interest on Mortgage...	546.00
	$26,546.00

No. 7	Realization and Liquidation.....	$21,700.00	
	To Cash.....		$21,700.00

For liquidation of accounts payable.

No. 8	Surplus.....	$13,830.00	
	To Realization and Liquidation.		$13,830.00

For following losses on sales of assets or collection thereof:

Accounts Receivable.....	$ 270.00
Land, Building, etc.....	5,700.00
Machinery, etc.....	660.00
Shop and Hand Tools.....	2,900.00
Furniture and Fixtures..	1,900.00
Raw Materials.....	2,400.00

No. 9	Surplus.....	$ 1,530.20	
	To Cash.....		$ 1,530.20

For expenses of liquidation.

No. 10	Surplus.....	$ 7,763.80	
	To Cash.....		$ 7,763.80

For final dividend to stockholders.

No. 11	Capital Stock.....	$60,000.00	
	To Cash.....		$60,000.00

For distribution to stockholders in the amount of 100% of their holdings.

Stock canceled.

P R O B L E M N O. 11

STATEMENTS EXPRESSIVE OF THE RESULTS OF OPERATIONS BY TRUSTEES

PROBLEM NO. 11

STATEMENTS EXPRESSIVE OF THE RESULTS OF OPERATIONS BY TRUSTEES

(Adapted from the New York C.P.A. Examination of January, 1913)

Text of the Problem

James Stetson is appointed trustee of the manufacturing business of John Brightlawn, for the purpose of rehabilitation. On taking charge he finds that the available assets are: cash in bank, $356; accounts receivable: (a) good $3,712; (b) probably uncollectible $350. The working and trading assets consist of: raw materials $17,258; sundry manufacturing supplies $700; finished goods $8,000; goods in process $30,945.70. Other assets comprise: machinery and machine tools $41,000; shop and hand tools $1,300; deferred debits to manufacturing $530. The liabilities are: creditors' accounts $39,700; wages accrued - productive $500; unskilled $230.

The transactions under the trusteeship are as follows: Loaned by creditors for immediate needs $7,000. Purchased on book accounts: raw materials $8,300; sundry manufacturing supplies $9,500. Factory expense: paid in cash $1,300; incurred as a liability to creditors and subsequently liquidated $2,100. The doubtful accounts receivable proved worthless. Cash paid for: productive labor $16,000; unskilled labor $2,500; general expense $8,000; additional shop tools $609; freight inward, on raw materials manufactured and sold $60. Interest allowed to creditors on their accounts amounted to $143.10. The trustee advanced $4,300 to

John Brightlawn on account of expected profits. The sales of finished goods amounted to $91,000.

At the close of the trusteeship, the trustee's books show the working and trading assets to be: finished goods $11,000; goods in process $10,450; raw materials $1,945.70; manufacturing supplies $395.25. There is besides an amount of $750.10 representing factory expenses unapplied. The creditors' accounts show a balance of $1,650.30, while the uncollected accounts receivable amount to $2,975.36. The shop and hand tools amount to $1,609.

Prepare an account which will respect the fiduciary character of the relations of the trustee and of the proprietor of the business, and reflect logically and clearly the result of J. Stetson's administration.

Discussion of Problem No. 11

To simplify the explanation of this problem, and establish a basis affording a common meeting ground, we will assume, if you please, that upon his taking charge of John Brightlawn's affairs, James Stetson, the trustee, opened a new set of books.

I present to you, at this point, the ledger accounts as they would appear on the new books of the trustee at the end of his administration; this is supplemented by the original trial balance of the general ledger, and the closing trial balance, just before the assets and liabilities are returned to John Brightlawn.

CASH

J. Brightlawn - Balance	$ 356.00	Factory Expense.....	$ 1,300.00
Creditors (Loan).....	7,000.00	Productive Wages.....	16,000.00
Accounts Receivable Old	3,712.00	Unskilled Labor.....	2,500.00
Accounts Receivable New	88,024.64	General Expense.....	8,000.00
		Tools.....	609.00
		Goods in Process - Freight Inward.....	60.00
		J. Brightlawn, Drawings	4,300.00
		Creditors.....	65,092.80
		Balance.....	1,230.84
	$99,092.64		$99,092.64
Balance.....	$ 1,230.84	J. Brightlawn.....	$ 1,230.84

ACCOUNTS RECEIVABLE

J. Brightlawn.....	$ 4,062.00	J. Brightlawn (Loss)...	$ 350.00
Finished Goods (Sales).	91,000.00	Cash.....	91,736.64
		Balance.....	2,975.36
	$95,062.00		$95,062.00
Balance.....	$ 2,975.36	J. Brightlawn.....	$ 2,975.36

RAW MATERIALS

J. Brightlawn.....	$ 17,258.00	Goods in Process.....	$ 23,612.30
Creditors.....	8,300.00	Balance - Inventory..	1,945.70
	$ 25,558.00		$ 25,558.00
Balance - Inventory...	$ 1,945.70	J. Brightlawn.....	$ 1,845.70

SUNDRY MANUFACTURING SUPPLIES

J. Brightlawn.....	$ 700.00	Goods in Process.....	$ 9,804.75
Creditors.....	9,500.00	Balance - Inventory..	395.25
	$ 10,200.00		$ 10,200.00
Balance - Inventory...	$ 395.25	J. Brightlawn.....	$ 395.25

FINISHED GOODS

J. Brightlawn.....	$ 8,000.00	Sales.....	$ 91,000.00
Goods in Process.....	75,222.65	Balance - Inventory..	11,000.00
J. Brightlawn (Gross Profit).....	18,777.35		
	$102,000.00		$102,000.00
Balance - Inventory...	$ 11,000.00	J. Brightlawn.....	$ 11,000.00

GOODS IN PROCESS

J. Brightlawn.....	$ 30,945.70	Finished Goods.....	$ 75,222.65
Raw Materials.....	23,612.30	Balance - Inventory..	10,450.00
Manufacturing Supplies	9,804.75		
Productive Wages.....	15,500.00		
Factory Overhead.....	5,749.90		
Freight Inward.....	60.00		
	$ 85,672.65		$ 85,672.65
Balance - Inventory...	$ 10,450.00	J. Brightlawn.....	$ 10,450.00

MACHINERY AND MACHINE TOOLS

J. Brightlawn.....	$ 41,000.00	J. Brightlawn.....	$ 41,000.00

SHOP AND TOOLS

J. Brightlawn.....	$ 1,300.00	Factory Overhead Expense.....	$ 300.00
Cash.....	609.00	Balance - Inventory..	1,609.00
	$ 1,909.00		$ 1,909.00
Balance - Inventory...	$ 1,609.00	J. Brightlawn.....	$ 1,609.00

FACTORY OVERHEAD EXPENSES

J. Brightlawn - Balance Unapplied.....	$ 530.00	Goods in Process.....	$ 5,749.90
Cash.....	1,300.00	Balance Unapplied....	750.10
Creditors.....	2,100.00		
Unproductive Labor....	2,270.00		
Shop Tools.....	300.00		
	$ 6,500.00		$ 6,500.00
Balance Unapplied.....	$ 750.10	J. Brightlawn.....	$ 750.10

CREDITORS' ACCOUNTS

Cash.....	$ 65,092.80	J. Brightlawn.....	$ 39,700.00
Balance.....	1,650.30	Cash.....	7,000.00
		Raw Materials.....	8,300.00
		Supplies.....	9,500.00
		Factory Expense.....	2,100.00
		Interest.....	143.10
	$ 66,743.10		$ 66,743.10
J. Brightlawn.....	$ 1,650.30	Balance.....	$ 1,650.30

WAGES ACCRUED - PRODUCTIVE

Cash.....	$ 16,000.00	J. Brightlawn.....	$ 500.00
		Goods in Process.....	15,500.00
	$ 16,000.00		$ 16,000.00

WAGES ACCRUED - UNSKILLED

Cash.....	$ 2,500.00	J. Brightlawn.....	$ 230.00
		Factory Overhead.....	2,270.00
	$ 2,500.00		$ 2,500.00

GENERAL EXPENSE

Cash.....	$ 8,000.00	J. Brightlawn.....	$ 8,000.00

INTEREST ACCOUNT PAYABLE

Creditors.....	$ 143.10	J. Brightlawn.....	$ 143.10

JOHN BRIGHTLAWN (Proprietor)

Sundry Liabilities taken over.....	$ 40,430.00	Sundry Assets taken over.....	$104,151.70
Accounts Receivable (lost).....	350.00	Gross Profit on Sales	18,777.35
Accounts Payable - Interest.....	143.10		
Cash - General Expenses of Trustee...	8,000.00		
Cash - Advances by Trustee.....	4,300.00		
	$ 53,223.10		
Balance.....	69,705.95		
	$122,929.05		$122,929.05
Sundry Assets returned	$ 71,356.25	Balance.....	$ 69,705.95
		Sundry Liabilities returned.....	1,650.30
	$ 71,356.25		$ 71,356.25

TRIAL BALANCES OF THE BOOKS OF THE TRUSTEE

INITIAL TRIAL BALANCE

Cash	$ 356.00	Creditors' Accounts	$ 39,700.00
Accounts Receivable...$3,712.00		Wages Accrued	730.00
Accounts Receivable... 350.00	4,062.00	J. Brightlawn	63,721.70
Raw Materials	17,258.00		
Manufacturing Supplies	700.00		
Finished Goods	8,000.00		
Goods in Process	30,945.70		
Machinery and Machine Tools	41,000.00		
Shop and Hand Tools	1,300.00		
Deferred Debits to Manufacturing	530.00		
	$104,151.70		$104,151.70

CLOSING TRIAL BALANCE

(Before return of Assets and Liabilities)

Cash	$ 1,230.84	Creditors' Accounts	$ 1,650.30
Accounts Receivable	2,975.36	J. Brightlawn	69,705.95
Raw Materials	1,945.70		
Manufacturing Supplies	395.25		
Finished Goods	11,000.00		
Goods in Process	10,450.00		
Machinery and Machine Tools	41,000.00		
Shop and Hand Tools	1,609.00		
Deferred Debits to Manufacturing	750.10		
	$ 71,356.25		$ 71,356.25

Before taking up the theory of the problem, we must establish the fact that, in accounting for manufacturing concerns, we use the wrong terminology. Nothing that enters the cost of the goods finished can be an expense, since it is capitalized in the finished product. The trader calls his merchandise an asset. When he acquired it he purchased the cost to the producer of material, labor, and burden. To the buyer these were assets of the vendor. To the manufacturer raw materials, indirect labor, and factory burden unapplied to finished goods are as much of an asset as the finished goods themselves. The use of the term "factory expense" when referring to capitalizable burden will do very well provided we realize that we are not dealing with the kind of expenses which textbooks on bookkeeping qualify as "loss and gain items." Even the cost of the goods sold, when ascertained by application of the remaining inventories, is not an expense item. It is merely expressive of the value of the capital given up in exchange for a promise by the buyer to pay a greater sum.

Now that we have built up the trustee's general ledger, we must attempt to present "logically and clearly" the result of his administration. Further, we must present the facts in such a manner as to "respect the fiduciary character of the relations of the trustee and of the proprietor of the business." We can do this only through the medium of the schedules of charges and discharges which all trustees must present to the courts which have jurisdiction over them.

At law, trustees are charged:

1. With the inventory of the estate, as established at the time of their taking charge.

2. With all new items of inventory discovered or obtained subsequently.

3. With the increases of inventory values through sales or maturity of rights existing in a potential manner but not certain as to amount at the time of inventory.

Trustees are creditable with:

1. Decreases of inventoried values.

2. Losses of inventoried values incurred through no fault of theirs.

3. Payments of debts.

4. Payments of expenses.

5. Inventory values unsold, either because they had no value or no market, or because to have sold them during the trustee's administration would have involved unnecessary losses.

These legal requirements dictate the form of our accounting. We shall not supply the schedules and summarize them, but our statement of the trustee's administration must be so built up as to reproduce the individual schedules.

When the statement is completed, we must be in a position to take every single one of the inventoried values and state precisely what happened to it: how it was increased, decreased, what gain or loss it sustained, what was its remainder, if any, and how it was finally disposed of. If we cannot do this, then our statement is inadequate. If we do not find means of applying the law; if we find it necessary, in order to balance,

to charge the trustee with gains, losses, and expenses, it will not help us at all to state, as is so often done in defending solutions of problems of this type, that the statement of the trustee is one-half his own statement and one-half the statement of the proprietor. Such an excuse is a denial of the truth of accounting and of the value of legal requirements.

In reality, the problem is very simple. We have a perfect ledger, and we are asked to open that ledger: to express the initial balance sheet minus its balancing proprietorship element; to state the changes which have taken place in every invested value, whether positive or negative; and to end with a balance sheet minus its balancing element.

The balancing proprietorship element referred to above is eliminated because, at law, we must substitute, in the initial balance sheet, the responsibility of the trustee, and in the closing balance sheet, the credit to the trustee for the discharge of that initial responsibility.

A mountain of objections has been erected against this type of problem; erroneous solution after ludicrous solution has been published; student after student has quit work on it in utter disgust. And yet the theory of the problem is fundamental, and any layman with common sense can see through it.

What is responsible for all this? Lack of knowledge of accounting theory; lack of imagination; lack of logic.

Solution of Problem No. 11

STATEMENT OF THE ADMINISTRATION OF THE AFFAIRS OF JOHN BRIGHTLAWN

BY JAMES STETSON, TRUSTEE

SECTION I - INVENTORIES

I TOOK OVER THE FOLLOWING ASSETS:

(1) Assets Included in the Original Inventory:		
Cash	$ 356.00	
Accounts Receivable	4,062.00	
Raw Materials	17,258.00	
Manufacturing Supplies	700.00	
Finished Goods	8,000.00	
Goods in Process	30,945.70	
Machinery and Machine Tools	41,000.00	
Shop and Hand Tools	1,300.00	
Factory Overhead Not applied	530.00	
Total in Original Inventory		$104,151.70
(2) New Assets Acquired during Trusteeship:		
Cash Proceeds of Loans by Creditors	$ 7,000.00	
Accounts Receivable arising from my sales:		
Collected in Cash	88,024.64	
Not Collected	2,975.36	
Raw Materials and Freight thereon	8,360.00	
Manufacturing Supplies	9,500.00	
Labor on Goods Manufactured	17,770.00	
Burden on Goods Manufactured	3,400.00	
Goods Finished during my administration	75,222.65	
New Tools	609.00	
Total New Assets		$212,861.65
PROFITS REALIZED DURING TRUSTEESHIP:		
Income from Sales	$91,000.00	
Less Cost of Goods Sold	72,222.65	
Gross Profit		$ 18,777.35
TOTAL ASSETS AND PROFITS, FOR WHICH I AM ACCOUNTABLE		$335,790.70

I TOOK OVER THE FOLLOWING LIABILITIES:

(1) Liabilities Included in the Original Inventory:		
Creditors	$39,700.00	
Employees - Wages	730.00	
Total Original Liabilities		$40,430.00
(2) New Liabilities Incurred during Trusteeship:		
(a) Creditors Accounts:		
For Loans	$ 7,000.00	
" Raw Material	8,300.00	
" Manufacturing Supplies	9,500.00	
" Factory Burden	2,100.00	
" Interest	143.10	
Total to Creditors		$27,043.10
(b) Employees:		
Wages Direct and Indirect	17,770.00	
Total New Liabilities		$44,813.10
TOTAL LIABILITIES FOR WHICH I AM ACCOUNTABLE		$85,243.10

SECTION II - ACCOUNTING

I ACCOUNT FOR LIABILITIES AS FOLLOWS:

(1) Liquidated:		
Creditors' Accounts		$ 65,092.80
Wages		18,500.00
Total Liquidated		$ 83,592.80
(2) Returned Unliquidated:		
Creditors' Accounts		1,650.30
TOTAL LIABILITIES FOR WHICH I ACCOUNT		$ 85,243.10
TOTAL OF SECTIONS I AND 2		$421,033.80

I ACCOUNT FOR ASSETS AS FOLLOWS:

(1) Consumed by Manufacturing Operations:		
Decrease of Inventory of Goods in Process		$ 20,495.70
Raw Materials and Freight thereon		23,672.30
Manufacturing Supplies		9,804.75
Factory Burden		3,179.90
Tools		300.00
Labor Direct		15,500.00
Labor Indirect		2,270.00
Total Consumed by Manufacturing Operations		$ 75,222.65
(2) Consumed by Sales:		
Finished Goods at Sale Price		$ 91,000.00
(3) Lost through No Fault of Mine:		
Accounts Receivable		$ 350.00
(4) Disbursed:		
(a) To Acquire Assets:		
Tools	$ 609.00	
Freight on Raw Materials	60.00	
Factory Burden	1,300.00	
(b) To Liquidate Debts:		
Creditors' Accounts	65,092.80	
Wages Accrued	18,500.00	
(c) To Pay Expenses:		
Expenses of Trustee	8,000.00	
(d) Advances to Proprietor	4,300.00	
Total Disbursed		$ 97,861.80
(5) Returned to John Brightlawn:		
Cash Balance	$ 1,230.84	
Accounts Receivable	2,975.36	
Raw Materials	1,945.70	
Manufacturing Supplies	395.25	
Finished Goods	11,000.00	
Goods in Process	10,450.00	
Machinery and Machine Tools	41,000.00	
Shop and Hand Tools	1,609.00	
Factory Burden Unapplied	750.10	
Total Returned		$ 71,356.25
TOTAL ASSETS FOR WHICH I ACCOUNT		$335,790.70
TOTAL OF SECTIONS I AND 2		$421,033.80

P R O B L E M N O. 12

ASCERTAINING INVESTED CAPITAL FROM INCOMPLETE AND BADLY KEPT BOOKS

PROBLEM NO. 12

ASCERTAINING INVESTED CAPITAL FROM INCOMPLETE AND BADLY KEPT BOOKS

Text of the Problem

The Perfect Piston Ring Company, of New Jersey, organized in 1914, and whose stock was owned by M and T, ex-partners, was purchased in March, 1919, by the Industrial Development Company of Delaware. The purchase was made through the acquisition of the stock, the Piston Ring Company retaining its identity. The plant was moved from New Jersey to Delaware.

In January, 1918, but as at December 31, 1917, the company had prepared and filed an income tax report showing:

INCOME:		
Net Sales		$251,110.30
Income from Other Sources		331.83
Total		$251,442.13
Cost of Goods Sold	$101,491.56	
Expenses General	33,397.11	
Debts Charged Off	1,855.84	
Interest Paid	1,326.22	
State and Local Taxes	744.98	138,815.71
Net Income		$112,626.42
INVESTED CAPITAL at January 1, 1917		$308,930.93
TAX PAYABLE (subsequently paid)		$ 35,448.27

The books had been very badly kept from 1914, when the company was crganized, to the end of 1917. There was no

general ledger, and such books as were available were very crude. No authoritative inventory had ever been taken.

In May, 1919, an agent of the Internal Revenue Department examined the company's books for the year 1917, and reported as follows:

NET SALES		$251,442.13
Cost of Goods Sold	$27,084.16	
General Expenses	24,040.86	
Losses	1,855.84	
Interest	1,261.61	
Taxes	744.99	
Total		54,987.46
NET INCOME		$196,454.67
INVESTED CAPITAL at January 1, 1917		$ 85,824.26
TAX PAYABLE		$112,342.68
Already Paid		35,448.27
Additional to be Paid		$ 76,894.41

The tax report filed by the company had been based upon the following non-certified statements rendered by public accountants to the Perfect Piston Ring Company as at November 30, 1917, for the eleven months ended at that date, supplemented by our estimate for the twelfth month.

BALANCE SHEET

A S S E T S

Plant Property (Appraised Values):			
Land and Buildings	$ 75,000.00		
Machinery, Tools, and Equipment	128,400.00		
Patterns	6,795.00		
Factory Equipment	5,000.00		
Office Furniture	3,000.00	$218,195.00	
Less Reserve for Depreciation		21,279.25	$196,915.75
Inventories (Appraised Values):			
Finished Stock		$ 75,000.00	
Goods in Process		8,500.00	
Raw Materials		19,000.00	
Factory Supplies		22,500.00	125,000.00
Cash			14,747.52
Accounts Receivable			33,725.05
Railroad Claims			120.00
Insurance Premiums - Unexpired Portion			366.08
TOTAL			$370,874.40

L I A B I L I T I E S

Capital Stock (60 shares at $100 each)	$ 6,000.00
Mortgage Payable (6%)	21,000.00
Accounts Payable	10,147.46
Accrued Pay-Roll	400.00
Reserve for Doubtful Accounts	750.00
Surplus (as per Exhibit "B")	332,576.94
TOTAL	$370,874.40

Exhibit "B" referred to by the balance sheet, was a statement of income for eleven months ended November 30,1917, of which the following is the summary:

Sales - Net		$232,594.62
Cost of Sales	$123,901.92	
Less Inventories Estimated	37,207.20	86,694.72
Gross Profit		$145,899.90
General and Administration Expense		14,501.84
Net Profit		$131,398.06
Other Income Credits		281.20
Gross Income		$131,679.26
Income Charges		7,339.60
Net Income		$124,339.66
Surplus at beginning of the period (adjusted by the application of appraised values as of November 30, 1917)		274,300.88
Gross Surplus		$398,640.54
Amounts withdrawn in lieu of salaries and dividends		66,063.60
Surplus, November 30, 1917		$332,576.94

The revenue agent stated that the difference of $74,407.40, existing in the cost of the goods (as between the company's report and his), could not be substantiated by the respondent, as the closing inventories were merely estimates Further, he admitted his inability to reconcile the difference of $223,106.67, existing between the invested capital claimed by the company and the amount allowed by him. His own allowance was made up of:

Capital Stock	$ 6,000.00
Surplus at December 31, 1916	79,824.86
	$85,824.86

The Industrial Development Company ascertained that in September, 1917, the following statements had been rendered by Certified Public Accountant O to a promoter who had in mind the sale of the Perfect Piston Ring Company to a syndicate of bankers.

BALANCE SHEETS AT JANUARY 1, 1916, AND AT AUGUST 31, 1917

A S S E T S

	Jan. 1, 1916	Aug. 31, 1917
Land	$ 6,000.00	$ 6,000.00
Building and Equipment	19,000.00	25,620.92
Machinery, Machine Tools, Shop and Hand Tools, Patterns, etc	64,302.21	101,780.00
Office Equipment	500.00	1,198.36
Factory Supplies in Reserve	10,250.00	27,000.00
Inventory of Raw Castings	2,500.00	37,500.00
Inventory of Rings in Process	3,000.00	10,000.00
Inventory of Finished Rings	7,500.00	18,000.00
Cash	4,341.37	10,744.88
Accounts Receivable	16,907.88	24,225.00
	$134,301.46	$262,069.16

L I A B I L I T I E S

	Jan. 1, 1916	Aug. 31, 1917
Capital Stock	$ 6,000.00	$ 6,000.00
Mortgage on Real Estate	21,000.00	21,000.00
Accounts Payable	2,496.90	3,124.28
Surplus	104,804.56	231,944.88
	$134,301.46	$262,069.16

SUMMARY STATEMENT OF INCOME AND PROFIT AND LOSS

For the Twenty Months Ended August 31, 1917

(Supported by Schedules)

Income from Sales	$357,562.74
Cost of Goods Sold	112,802.60
Gross Profit on Sales	$244,760.14
Commercial Expenses	11,046.42
Commercial Profit	$233,713.72
Administering and Financing	33,473.40
Net Profit for the period	$200,240.32
Withdrawn by T and M	73,100.00
Profit and Loss Surplus for the period	$127,140.32
Previously Reinvested	104,804.56
Surplus at August 31, 1917	$231,944.88

AVERAGES	Year 1916	8 Months 1917
Sales Price	$.201	$.199
Cost of Goods Sold	.051	.07
Raw Castings	.013	.018

The Industrial Company ascertained from Accountant O that his statements resulted from inventories taken by him for the purpose of a rapid survey and subsequent report to the promoter, and from extensive analyses of such books, records, and accounts as the company possessed; and that, having established in a general way the assets and liabilities of the company at August 31, 1917, he had, through his analyses, established the probable financial status at January 1, 1915. So far as the year 1915 was concerned, he had done nothing more. But the report of the revenue agent, referred to in the foregoing, showed that

the income for 1915 had been $45,968.14. The officers of the company had, during 1915, withdrawn $17,000 in lieu of dividends.

In view of the conditions stated in the foregoing, the Industrial Development Company (who, as purchaser of the Perfect Piston Ring Company, had assumed the liability for additional taxes, if any were to be paid) decided to accept as a basis the figures submitted by Accountant O to the promoter, in so far at least as the year 1915 was concerned, and to attempt to establish the invested capital of the Perfect Piston Ring Company at January 1, 1917, and the true income for the year ended December 31, 1917.

The analysis of the company's books (such as they were) and of all available records and documents produced the following:

SALES:	1916	1917
Units:		
Wholesale	970,329	1,186,906
Retail	63,525	106,074
	1,033,854	1,292,980
Values:		
Wholesale	$181,351.96	$210,700.98
Retail	24,774.81	40,409.32
	$206,126.77	$251,110.30
PURCHASES:		
Piston Ring Castings (Net)	$ 25,875.24	$ 45,770.91
Capitalizable:		
Building and Equipment	25,329.51	5,670.49
Machinery and Parts	10,910.50	9,905.13
Factory Supplies in Reserve	7,000.00	5,250.00
Patterns	935.16	664.84
Office Equipment	261.19	238.81
	$ 70,211.60	$ 67,500.18

BALANCES AT DECEMBER 31:	1916	1917
Cash	$ 3,810.06	$ 1,342.94
Accounts Receivable	23,980.38	26,231.28
Claims Receivable		120.00
Prepayments:		
Insurance		211.75
Capital Stock	6,000.00	6,000.00
Mortgage on Real Estate	21,000.00	
Creditors	5,632.08	11,688.77
Accrued Salaries		700.40
WITHDRAWN BY OFFICERS IN LIEU OF DIVIDENDS	44,604.47	43,600.00

The expenses for the years 1916 and 1917, were as follows:

	1916	1917
Discounts Allowed Customers	$ 3,765.84	$ 3,703.40
Interest on Mortgage	1,260.00	1,326.22
Accounts Receivable written off	46.48	1,855.84
Wages	49,867.37	64,192.31
Heat, Light, and Power	3,476.97	3,600.00
Water	112.23	152.27
Cartage and Expressage Inward	909.23	1,250.00
Repairs to Machinery	1,110.37	14,174.21
Labor Purchased Outside	470.50	100.00
Liability Insurance - Workingmen	190.00	170.42
Officers' Salaries - Manufacturing	3,418.00	5,200.00
Miscellaneous Factory Expense	756.55	4,550.35
Salaries Shipping and Selling (including Officers' Salaries)	6,297.15	6,200.00
Commissions	168.28	215.83
Advertising	4,758.08	4,993.12
Salaries of Officers - Administration	3,000.00	5,200.00
Office Salaries	2,339.48	2,538.32
Traveling Expense	2,315.15	2,136.63
Stationery and Printing	1,177.62	715.00
Postage and Expressage	522.99	765.00
Telephone and Telegrams	382.59	475.00
Gifts and Donations	490.00	121.75
Protection of Buildings and Goods	264.37	366.37
Miscellaneous Expense	666.10	766.69
Taxes on Personal and Real Property	867.68	744.98

Income Taxes paid were:

For 1915	$321.79
For 1916	469.80

Income Credits were:	1916	1917
Interest on Bank Balances	$195.19	$331.83
Discounts - Creditors' Accounts	854.94	

The detail of the net purchases of piston ring castings (which were individual castings instead of pot castings) was as follows:

	1916	1917
A Foundry Company	$11,381.44	$ 3,930.71
B " "	11,721.01	6,852.98
C " "	2,772.79	1,006.94
D " "		5,791.29
E " "		28,188.99
Total	$25,875.24	$45,770.91

A diligent search of files and other receptacles for miscellaneous papers, revealed the fact that, during the year 1917, under the direction of an efficient manager, the officers of the company had received weekly reports, very crudely established, but purporting to give, weekly, the factory production of rings and the shipments of finished rings out of the factory. When analyzed and summarized, these reports produced for 1917:

Production:

For Shipment	Rings	1,546,003
" Stock	"	58,167
Total		1,604,170

Shipments:

Wholesale Trade	Rings	1,186,906
Retail Trade	"	106,074
Total		1,292,980

These reports also indicated that, in the year 1917, about 75,000 rings had been scrapped as defective. No information was available for 1916 in regard to this item. For the year 1916 only one report existed; it was for the week ended December 31,1916, and showed:

Boring and Scraping	Rings.....	52,195
Rough Polishing	"	47,181
Outside Polishing	"	36,000
" Finishing	"	41,046
Milled and Hammered	"	24,860
		201,282

The corresponding report for the week ended December 31, 1917, showed:

Rough Outside Grinding	Rings.....	19,778
Boring and Scraping	"	17,769
Milling and Hammering	"	42,630
Rough Outside Finishing	"	59,169
		139,346

The Delaware plant was said to be working under practically the same conditions as had prevailed at the Jersey plant. Study of the conditions at the new plant elucidated the fact that, of the rings put in process at the beginning of any week, the following remained unfinished at the end of the week.

Boring and Scraping.....	100%
Rough Polishing.....	100%
Outside Polishing.....	50%
Outside Finishing.....	33 1/3%
Milled and Hammered.....	50%
Rough Outside Grinding.....	100%

By conferring with the ex-manager of the Jersey plant, it was ascertained that in 1916 the factory had been working at

a disadvantage during the first six months, owing to improper management; that during that time it produced no more than 3,000 rings per day, while during the last six months it gradually got to the point where it doubled its original production. It was estimated by technical experts that, for the last six months of 1916, the average production had probably been 5,500 rings per day, all things being considered.

An analysis of bills for piston ring castings for periods of two months at the beginning, in the middle, and at the end of 1915, 1916, and 1917, showed conclusively that the individual castings had cost an average of $.013 in 1915 and in 1916, and $.0163 plus in 1917. Study of conditions at the Delaware plant, which were said to be fairly representative of the ones known to have prevailed at the Jersey plant for the year 1917, demonstrated that, in the aggregate, the cost of the goods in process at their various stages represented at any given time about 50% of the cost of the finished goods. As to 1916, it was admitted that the value of the goods in process at the end of the year could not be determined positively, but it was assumed that it must have been practically the same as in 1915.

It was established that the manufacturing cost of each ring, when gauged in relation to the conditions surrounding raw materials and labor in 1915, 1916, and 1917, must have been approximately $.008 greater in 1917 than in 1916, and $.011 greater in 1916 than in 1915.

The element of depreciation was unknown, because the machinery, having been moved to Delaware, had been refitted and

in some instances altered to suit new conditions. It was intended, however, to claim approximately $5,000 for the year 1917.

REQUIRED:

(a) General Balance Sheet of the Perfect Piston Ring Company at December 31, 1915, December 31, 1916, and December 31, 1917.

(b) Statements of Income and Profit and Loss of the company for the years ended December 31, 1916, and December 31, 1917.

(c) Bases for ascertaining Inventories of Raw Castings, Rings in Process, and Finished Rings, at December 31, 1916, and at December 31, 1917.

(d) Computation of the tax to be paid for 1917.

Discussion of Problem No. 12

In order to state the problem precisely, it has been necessary to disclose so much of the reasoning process which led the Industrial Development Company to its solution, that the greater part of the difficulties surrounding it have been removed.

Therefore, instead of having to plan ways and means, we need only to analyze the company's method of procedure in establishing inventories so plausible as to be accepted by critics as fastidious as the special audit board of the Internal Revenue Department have proved themselves to be, to the great discomfiture of so many claimants.

Using as a basis the inventories obtained by Accountant O, the Industrial Development Company probably reasoned as follows, for the year 1916:

1. The inventory value of the goods in process at January 1, 1916, as given by Accountant O is $.03 per ring; therefore the inventory contains 100,000 rings.

2. The inventory value of the finished rings on hand at January 1, 1916, is given at $.05; therefore the inventory contains 150,000 rings.

3. The average cost of castings purchased in 1915 is found to have been $.013 per casting; therefore the inventory of raw materials on hand at January 1, 1916, must have contained 192,308 rings and 1, 919,737 ring castings were purchased during the year.

4. If the 100,000 rings in process at January 1, 1916, cost $.03 apiece, and the value of the casting represents $.013, the labor and overhead value contained in the inventory is $.017, or $1,700.

5. Since, to the best of our knowledge, the Jersey plant produced in the average:

(a) For the first six months of 1916, 3,000 rings per day, that is equivalent to 18,000 per week, or 72,000 per month, hence..... 432,000

(b) For the second six months of 1916, 5,500 per day, or 33,000 per week, or 132,000 per month, hence..... 792,000

Therefore, the yearly production was, in finished rings..... 1,224,000

6. Since we know, at the end of any week, the ratio of the goods remaining in process to the total goods put in process at the beginning of the week, therefore the number of rings in process at December 31, 1916, must have been:

Boring and Scraping	100%.....	52,195
Rough Polishing	100%.....	47,181
Outside Polishing	50%.....	18,000
Outside Finish	33 1/3%.....	13,682
Milled and Hammered	50%.....	12,430
Total.....		143,488

Consequently, so far as units are concerned, we account as follows:

RAW CASTINGS:

(1) Available in 1916:

Initial Inventory.....	192,308
Purchases - 1916.....	1,919,737
	2,112,045

(2) Disposed of as follows:

Sold.....	1,033,854	
Less on hand at beginning.....	150,000	
Manufactured and Sold during the year.....		883,854
Manufactured and Unsold.....		340,146
Increase of Inventory of Rings in Process.....		43,488
		1,267,488

(3) Inventory, December 31, 1916..... 844,557

RINGS IN PROCESS:

(1) Available in 1916:

Initial Inventory	100,000
Raw Castings sent to process	1,267,488
	1,367,488

(2) Disposed of as follows:

Finished and Sold	883,854
Finished and Unsold	340,146
	1,224,000

(3) Inventory, December 31,1916 143,488

FINISHED RINGS:

(1) Available in 1916:

Initial Inventory	150,000
Produced in 1916	1,224,000
	1,374,000

(2) Disposed of as follows:

Sold in 1916 1,033,854

(3) Inventory, December 31, 1916 340,146

As to inventory values:

We have the value of:

1. The initial inventory of
   Raw Materials ..... $.013
   Goods In Process ..... .03
   Finished Goods ..... .05

2. The closing inventory of
   Raw Materials ..... .013

3. The closing inventory of
   Goods in Process, estimated to be the same as
   in 1915 ..... .03

We require:

The value of the closing inventory of finished rings.

We have ascertained that the condition of the material and labor market in 1915, 1916, and 1917 warrants the belief that, if a finished ring cost $.05 in 1915, it probably cost $.05 plus $.011, equals $.061, in 1916. Therefore, in the absence of more positive information, we accept that value.

The same reasoning, modified only as to changes in factors as stated by the problem, applies to 1917.

The real difficulty, in the case at issue, must have been to make a plan of battle so thorough as to ferret out the enemy, division after division; then, from the elements so obtained to reconstruct theoretically its whole original organism.

Solution of Problem No. 12

PERFECT PISTON RING COMPANY

GENERAL BALANCE SHEET

At December 31, 1915, December 31, 1916, and December 31, 1917

A S S E T S

	December 31, 1915	December 31, 1916	December 31, 1917
CAPITAL ASSETS:			
Land	$ 6,000.00	$ 6,000.00	$ 6,000.00
Buildings and their Equipment	19,000.00	44,329.51	50,000.00
Machinery, Machine Tools, Shop and Hand Tools, etc.	64,302.21	75,212.71	85,117.84
Patterns	--- --	835.16	1,500.00
Office Equipment	500.00	761.19	1,000.00
Total Capital Assets	$ 89,802.21	$127,138.57	$143,617.84
OPERATING ASSETS:			
(1) Working and Trading:			
Factory Supplies in Reserve	$ 10,250.00	$ 17,250.00	$ 22,500.00
Inventory of Raw Castings	2,500.00	10,979.24	31,428.08
Inventory of Rings in Process	3,000.00	4,304.64	4,518.63
Inventory of Finished Rings	7,500.00	20,748.91	46,224.86
Total Working and Trading	$ 23,250.00	$ 53,282.79	$104,671.57
(2) Liquid Assets:			
Cash	$ 4,341.37	$ 3,810.06	$ 1,342.94
Accounts Receivable	16,907.88	23,980.38	26,231.28
Claims Receivable	--- --	--- --	120.00
Total Liquid Assets	$ 21,249.25	$ 27,790.44	$ 27,694.22
(3) Prepayments of Insurance	$ --- --	$ --- --	$ 211.75
Total Operating Assets	$ 44,499.25	$ 81,073.23	$132,577.54
TOTAL ASSETS	$134,301.46	$208,211.80	$276,195.38

L I A B I L I T I E S

	December 31, 1915	December 31, 1916	December 31, 1917
CAPITAL LIABILITIES:			
Capital Stock	$ 6,000.00	$ 6,000.00	$ 6,000.00
Funded Debt:			
Mortgage on Real Estate	21,000.00	21,000.00	--- --
Total Capital Liabilities	$ 27,000.00	$ 27,000.00	$ 6,000.00
OPERATING LIABILITIES:			
Accounts Payable	$ 2,496.90	$ 5,632.08	$ 11,688.77
Accrued Salaries	--- --	--- --	700.40
Total Operating Liabilities	$ 2,496.90	$ 5,632.08	$ 12,389.17
SURPLUS REINVESTED:			
(1) Earned during the year	$ 45,968.14	$115,701.42	$126,296.29
Deduct: Withdrawn by officers in lieu of dividends on capital stock	17,000.00	44,604.47	43,600.00
	$ 28,968.14	$ 71,096.95	$ 82,696.29
(2) Reinvested in prior periods	75,836.42	104,482.77	175,109.92
Total Surplus Reinvested	$104,804.56	$175,579.72	$257,806.21
TOTAL LIABILITIES, CAPITAL STOCK AND SURPLUS	$134,301.46	$208,211.80	$276,195.38

PERFECT PISTON RING COMPANY

STATEMENT OF INCOME AND PROFIT AND LOSS

For the Years Ended December 31, 1916, and December 31, 1917

	Units	Average Price	Values Dec. 31, 1916	Units	Average Price	Values Dec. 31, 1917
SALES OF PISTON RINGS:						
Wholesale	970,329	$ .18 plus	$181,351.98	1,186,906	$ .177 plus	$210,700.98
Retail	63,525	.39	24,774.81	106,074	.38 plus	40,409.32
Total Sales	1,033,854	$ .199 plus	$206,126.77	1,292,980	$ .194 plus	$251,110.30
COST OF RINGS SOLD:						
Manufacturing Cost:						
(1) Materials:						
Inventory of Piston Ring Castings, Jan. 1	192,308	$ .013	$ 2,500.00	844,557	$ .013	$ 10,979.24
Inventory of Goods in Process, Jan. 1 (material value only)	100,000	.013	1,300.00	143,488	.013	1,865.34
Purchases of the period	1,919,737	.0135 minus	25,875.24	2,798,868	.0163 plus	45,770.91
Material Available	2,212,045	$ .0136 minus	$ 29,675.24	3,786,913	$ .0155 minus	$ 58,615.49
(2) Wages			$ 49,867.37			$ 84,192.31
(3) Overhead of previous period:						
Wages and Overhead Included in the value of the goods in process at Jan. 1		$ .017	$ 1,700.00			$ 2,439.30
Overhead of present period:						
Heat, Light, Power			3,478.97			3,600.00
Water			112.23			152.27
Cartage and Expressage In			909.23			1,250.00
Repairs to Machinery			1,110.37			14,174.21
Labor purchased outside			470.50			100.00
Liability Insurance, Workmen			190.00			170.42
Portion of Officers' Salaries applicable to manufacture of goods			3,418.00			5,200.00
Miscellaneous Factory Expense			756.55			4,550.35
Depreciation of Machinery not considered						
	2,212,045	$ .0053 plus	$ 12,143.85	3,786,913	$ .0083 plus	$ 31,636.55
Total Manufacturing Cost (forward)	2,212,045	$ .0414 plus	$ 91,686.46	3,786,913	$ .0407 plus	$154,444.35

	Units	Average Price	Values Dec. 31, 1916	Units	Average Price	Values Dec. 31, 1917
Total Manufacturing Cost (forwarded).....	2,212,045	$ .0414 plus	$ 91,386.46	3,786,913	$ .0407 plus	$154,444.35
Deduct:						
Decrease of Inventory of Rings in Process.....		$	$	64,903	$	$
Rings scrapped during the year.....				75,000		
Inventory of Piston Ring Castings, Dec. 31.....	844,557	.013	10,979.24	1,964,255	.016	31,428.08
Inventory of Goods in Process at Dec. 31 (Materials only).....	143,488	.013	1,865.34	78,585	.016	1,257.36
Inventory of Goods in Process (Labor and Overhead).....		.017	2,439.30		.0415	3,261.27
Total Deductions.....	988,045	$ .0154 plus	$ 15,283.88	2,182,743	$ .016 plus	$ 35,946.71
MANUFACTURING COST OF GOODS FINISHED DURING THE PERIOD.....	1,224,000	$ .0624 plus	$ 76,402.58	1,804,170	$ .073 plus	$118,497.64
Add Inventory of Finished Rings, Jan. 1.....	150,000	.05	7,500.00	340,146	.061	20,748.91
Cost of Finished Rings Available for Sale.....	1,374,000	$ .061 plus	$ 83,902.58	1,944,318	$ .071 plus	$139,246.55
Deduct Inventory of Finished Rings, Dec. 31.....	340,146	.061	20,748.91	651,336	.071 minus	46,224.86
COST OF GOODS SOLD.....	1,033,854	$ .061 plus	$ 63,153.67	1,292,980	$ .071 plus	$ 93,021.69
GROSS PROFIT ON SALES.....	1,033,854	$ .1381 plus	$142,973.10	1,292,980	$ .122 plus	$158,088.61
COMMERCIAL EXPENSE:						
Salaries, Shipping and Selling, including portion of salaries of officers.....			$ 6,297.15			$ 6,200.00
Commissions.....			168.28			215.83
Advertising.....			4,753.08			4,993.12
Total Commercial Expense	1,033,854	$ .0108	$ 11,223.51	1,292,980	$ .088 plus	$ 11,408.95
COMMERCIAL PROFIT (forward).....	1,033,854	$ .1273 plus	$131,749.59	1,292,980	$ .113 plus	$146,679.66

	Units	Average Price	Values Dec. 31, 1916	Units	Average Price	Values Dec. 31, 1917
COMMERCIAL PROFIT (forwarded)....	1,033,854	$ .1273 plus	$131,749.59	1,292,980	$ .113 plus	$146,879.36
GENERAL AND ADMINISTRATION EXPENSE:						
Salaries of Officers, administrative portion.....			$ 3,000.00			$ 5,200.00
Office Salaries.....			2,339.48			2,538.32
Traveling Expenses, Carfares...			2,315.15			2,136.63
Stationery and Printing.....			1,177.82			715.00
Postage, Expressage, etc.....			522.99			765.00
Telephone and Telegrams.....			382.59			475.00
Gifts and Donations.....			490.00			121.75
Protection of Buildings and Goods.....			264.37			366.37
Miscellaneous Expense.....			666.10			768.69
Total General and Administration Expense.....	1,033,854	$ .0107 plus	$ 11,158.30	1,292,980	$ .0101 plus	$ 13,084.76
NET PROFIT ON SALES.....	1,033,854	$ .1166 plus	$120,591.29	1,292,980	$ .103 plus	$133,594.90
OTHER INCOME:						
Interest on Bank Balances.....			$ 195.19			$ 331.83
Discounts on Creditors' Accounts.....			854.94			
Total Other Income.....			$ 1,050.13			$ 331.83
TOTAL.....			$121,641.42			$133,926.73
DEDUCTIONS FROM INCOME:						
Discounts Allowed to Customers.....			$ 3,766.84			$ 3,703.40
Interest on Mortgage, etc.....			1,260.00			1,326.22
Taxes on Personal Property and Real Estate.....			837.68			744.98
Total Deductions from Income.....			$ 5,893.52			$ 5,774.60
NET INCOME FOR THE YEAR ENDED DECEMBER 31.....			$115,747.90			$128,152.13
PROFIT AND LOSS CHARGES:						
Accounts Receivable written off.....			46.48			1,855.84
PROFIT AND LOSS SURPLUS FOR THE YEAR ENDED DECEMBER 31.....			$115,701.42			$126,296.29
INCREASE BY OPTIONS IN LIEU OF DIVIDENDS.....			44,604.47			43,600.00
PROFIT AND LOSS SURPLUS TRANSFERRED TO SURPLUS.....			$ 71,096.95			$ 82,696.29

PERFECT PISTON RING COMPANY

BASIS FOR ASCERTAINING INVENTORIES OF

RAW CASTINGS, RINGS IN PROCESS, AND FINISHED RINGS

At December 31, 1916

Particulars	Money Values	Average	Units Raw Castings	Units Rings in Process	Units Finished Rings
Inventories, January 1, 1916:					
Raw Castings	$ 2,500.00	$.013	192,308		
Rings in Process	3,000.00	.03		100,000	
Finished Rings	7,500.00	.05			150,000
Purchases of the Year	25,875.24	.013	1,919,737		
MATERIALS AVAILABLE	$38,875.24		2,112,045	100,000	150,000
PRODUCTION:					
Finished Goods:					
(1) For the first 6 months of 1916, estimated to have been 3,000 per day, i.e., 18,000 per week, or 72,000 per month					432,000
(2) For the last 6 months of 1916, estimated to have averaged 5,500 per day, 33,000 per week, 132,000 per month					792,000
Goods in Process:					
Estimated to have been the following portion of the output of the last week of December, 1916, as evidenced by a weekly factory report dated December 24 to December 31, 1916, the only available record for 1916:					
Boring and Scraping 100%				52,195	
Rough Polishing 100%				47,181	
Outside Polishing 50%				18,000	
Outside Finish 33 1/3%				13,682	
Milled and Hammered 50%				12,430	
TOTAL			2,112,045	243,488	1,374,000
DEDUCTIONS:					
Goods in Process at beginning of year, consumed by production				100,000	
Castings Consumed by Production: Finished Castings 1,224,000, plus increase of Castings in Process 43,488			1,267,488		
Consumed Sales					1,033,854
Inventories, December 31, 1916	Quantities		844,557	143,488	340,146
Inventories, December 31, 1916	Prices		$ .013	$ .03	$ .061
Inventories, December 31, 1916	Money Values		$10,979.24	$4,304.64	$20,748.91

PERFECT PISTON RING COMPANY

BASIS FOR ASCERTAINING INVENTORIES OF

RAW CASTINGS, RINGS IN PROCESS, AND FINISHED RINGS

At December 31, 1917

Particulars	Money Values	Average	Units Raw Castings	Units Rings in Process	Units Finished Rings
Inventories, January 1, 1917:					
Raw Castings	$10,979.24	$.013	844,557		
Rings in Process	4,304.64	.03		143,488	
Finished Rings	20,748.91	.061			340,146
Purchases of the Year	45,770.91	.0183 plus	2,798,868		
MATERIALS AVAILABLE	$81,803.70		3,643,425	143,488	340,146
PRODUCTION:					
Finished Goods: Based on actual summary of production records established by factory, all of which are available					1,604,170
Goods in Process: Based on Factory Report for week beginning December 24, 1917:					
Rough Outside Grinding 100%				19,778	
Boring Department 100%				17,769	
Milling and Hammering 50%				21,315	
Rough Outside Finishing 33 1/3%				19,723	
TOTAL			3,643,425	222,073	1,944,316
DEDUCTIONS:					
Goods in Process at beginning of year				143,488	
Castings Consumed by Production: Finished Castings 1,604,170; Scraping Rings 75,000			1,679,170		
Consumed by Sales					1,292,980
Inventories, December 31, 1917 — Quantities			1,964,255	78,585	651,336
Inventories, December 31, 1917 — Average Prices			$ .016	$ .0575	$ .071 minus
Inventories, December 31, 1917 — Values			$31,428.08	$4,518.63	$46,224.86

COMPUTATION OF TAXES - 1917

NET INCOME, exclusive of depreciation.....	$126,296.29
Deduct Depreciation not considered in statement establishing Income, owing to conditions surrounding the case, say, for 1917, roughly.....	5,000.00
Income Remainder.....	$121,296.29
Add Gifts and Donations.....	121.75
REPORTABLE INCOME.....	$121,418.04

CAPITAL..... $181,579.72

Deduction 8%.....		$ 14,526.38			
Exemption.....		3,000.00			
Total Deduction.....		$ 17,526.38			
15%	$ 27,236.96	$ 17,526.38	$ 9,710.58	20%	$ 1,942.12
5%	9,078.99		9,078.99	25%	2,269.75
5%	9,078.99		9,078.99	35%	3,177.64
8%	14,526.37		14,526.37	45%	6,536.86
33 1/3%	61,496.73		61,496.73	60%	36,898.04
	$121,418.04	$ 17,526.38	$103,891.66		$50,824.41

INCOME TAX - INCOME.....	$121,418.04	
Less Excess Profits Tax..	50,824.41	
Balance.....	$ 70,593.63	
2% of $70,593.63.....		$ 1,411.87
4% " 70,593.63.....		2,823.74
INCOME TAX.....		$ 4,235.61
EXCESS PROFITS.....		50,824.41
TOTAL TAX.....		$55,060.02
Previously paid.....		35,448.27
Additional to be paid.....		$19,611.75

P R O B L E M N O. 13

ASCERTAINING INVESTED CAPITAL FROM INCOMPLETE BOOKS OF ACCOUNT

PROBLEM NO. 13

ASCERTAINING INVESTED CAPITAL FROM INCOMPLETE BOOKS OF ACCOUNT

Text of the Problem

In January, 1919, the A K Z Company of Providence, R. I., acquired a controlling interest in the M V Company of Bridgeport, Conn.

The M V Company, which as a copartnership had begun business in 1897, was incorporated on January 1, 1908. Its balance sheet showed on that date:

M V COMPANY

GENERAL BALANCE SHEET AT JANUARY 1, 1908

Cash	$ 10,634.32	Capital Stock	$100,000.00
Accounts Receivable	37,496.03	Bills Payable	3,300.00
Bills Receivable	711.80	Accounts Payable	5,489.99
Investments in Stocks	48.25	Accrued Wages	785.86
Inventory of Consigned Goods	13,754.60	Reserve for Accounts Receivable	3,749.60
Inventory of Partly Finished Goods and of Raw Materials	29,132.95	Paid-in Surplus	29,132.95
Machinery	15,715.00		
Shop Tools	6,829.77		
Patterns	1,500.00		
Office Furniture and Fixtures	1,040.85		
Patents	24,328.01		
Organization Expense	1,246.82		
	$142,438.40		$142,438.40

Subsequently to January 1, 1908, but during the first year, a journal entry was made debiting Surplus, and crediting Inventory of Partly Finished Goods and Raw Materials with $29,132.95. Thereafter,

no inventory of partly finished goods and of raw materials was ever taken, the profits being figured on the theory that everything was cost, except goods actually finished and consigned to agents.

As of December 31, 1918, I and U, Certified Public Accountants, made an audit of the books, records, and accounts of the M V Company, and in the course of their work took and priced a physical inventory of all materials, whether finished and consigned, partly finished, or raw, and other physical values. The balance sheet which they submitted was as follows:

M V COMPANY

GENERAL BALANCE SHEET AT DECEMBER 31, 1918

Machinery.....	$ 82,354.00	Capital Stock.....	$100,000.00
Tools.....	38,486.20	Accounts Payable.....	13,428.44
Office Furniture.....	2,450.00	Accrued Wages, etc....	1,921.71
Automobile.....	206.37	Bills Payable.....	1,025.78
Patents.....	29,040.22	Reserves for Accounts Receivable.....	3,325.23
Patterns and Drawings.	7,500.00		
Finished Goods Consigned.....	7,324.63	Reserve for Depreciation.....	17,432.61
Partly Finished Goods and Raw Materials...	107,857.66	Surplus.....	270,873.88
Cash.....	18,461.27		
Accounts Receivable...	62,699.29		
Investments in Bonds and Stocks.....	50,685.00		
Bills Receivable.....	454.76		
Insurance Prepaid.....	488.25		
	$408,007.65		$408,007.65

Compared with the results of the general books, before adjustments by the accountants, the above balance sheet at December 31, 1918, showed an increase of $222,199.73 in net assets. This was made up of new inventories, never recorded before, and of sundry increases of inventories as follows:

Raw Materials	$ 22,568.75
Goods in Process	85,288.91
Increased Valuation of Machinery	16,774.12
Increased Valuation of Tools	14,765.77
Increased Valuation of Patterns and Drawings	6,000.00
Writing back of Patents written off	29,040.22
Miscellaneous Adjustments - Net	47,761.96
	$222,199.73

This difference of $222,199.73 was considered by the accountants as applying in full to the beginning of the year 1917. On this basis, they established the tax report for the year; but as this conflicted with previous reports of invested capital, they divided $222,199.73 by 9, applied 1/9 to each year back to 1909, prepared amended tax reports for previous years, and submitted them together with a check for additional taxes.

The Internal Revenue Department returned the check and, in the early part of 1919, sent agents to investigate. The agents reported as follows:

Invested Capital:

1911	$ 80,909.14
1912	90,024.84
1913	104,368.82
1917	122,491.69
1918	150,017.42

Net Income:

1917	$ 57,082.31
1918	127,842.15

Additional Taxes to be paid:

1917	$ 6,160.68
1918	71,024.71

The additional taxes were due mostly to the difference between the invested capital as reported by the agent on the one hand, and by the accountants on the other; still there were some items considered by the company as expense which the agent had disallowed. The propriety of the disallowance was admitted by the company. The items were:

Additional Salary of Officers, paid as of 1918 out of a fund of securities accumulated for the general welfare of the enterprise.....	$40,000.63
Manufacturing Expenses, Disallowed, or Capitalizable:	
Rent, 1918 (paid to officers who owned the plant as private individuals)....	$ 2,400.00
Hardening Room Expense (1918) capitalizable.....	3,258.81
Other Factory Overhead Expense (1918) capitalizable.....	3,821.09
Total.....	$ 9,479.90

As to the difference in invested capital, the company contended that the findings of the agent were devoid of common sense. The Revenue Department allowed one month to prepare the case in rebuttal. Therefore, an accountant was engaged with a mandate of establishing, if possible, the authoritative invested capital of the company for each and every year of the period from January 1, 1908, to December 31, 1918.

The accountant's analysis of the books, records, and accounts of the company produced:

M V COMPANY

COMPARATIVE STATEMENTS OF INCOME AND PROFIT AND LOSS

For the Eleven Years ended December 31, 1918

GROSS PROFIT SECTION

Year	SALES: Net Sales Amount	%	Initial Inventory Amount	%	Purchases Amount	%	Labor Amount	%	Overhead Amount	%	(1) Available Amount	%	(2) Closing Inventory Amount	%	Cost of Goods Sold Amount	%	GROSS PROFIT Amount	%
1908	$ 54,040.56	4.39	$ 13,754.60	7.75	$ 9,611.21	4.76	$ 18,034.43	5.16	$ 7,568.44	5.34	$ 48,968.68	5.81	$ 16,474.34	9.63	$ 32,494.34	4.71	$ 21,546.22	3.96
1909	49,493.42	4.02	16,474.34	9.28	8,012.94	3.96	15,311.82	4.38	4,416.06	3.12	44,215.16	5.14	16,828.06	9.84	27,387.10	3.97	22,106.32	4.08
1910	62,902.34	5.03	16,828.06	9.48	11,869.13	5.87	23,480.49	6.73	5,407.55	3.82	57,585.23	6.59	16,750.00	9.79	40,835.23	5.92	22,067.11	4.07
1911	60,012.81	4.88	16,750.00	9.45	10,562.25	5.22	26,266.01	7.52	4,345.69	3.08	57,923.95		16,765.74	9.79	39,085.21	5.67	20,927.60	3.86
											2,073.00							
											$ 55,850.95	6.49						
1912	75,640.33	6.14	16,765.74	9.45	11,447.66	5.66	23,532.21	6.74	4,616.71	3.26	$ 56,362.32		16,658.79	9.74	37,376.22	5.42	38,264.11	7.02
											2,327.31							
											$ 54,035.01	6.28						
1913	102,538.79	8.32	16,658.79	9.39	14,384.03	7.13	27,804.70	7.96	9,999.64	7.06	$ 68,847.16		17,000.00	9.94	51,113.56	7.42	51,425.23	9.47
											733.60							
											$ 68,113.56	7.91						
1914	86,732.58	7.04	17,000.00	9.58	15,376.80	7.90	29,317.65	8.39	11,876.27	8.38	$ 73,570.52		20,000.00	11.69	52,763.52	7.65	33,969.06	6.26
											807.00							
											$ 72,763.52	8.46						
1915	80,771.17	6.56	20,000.00	11.27	10,923.32	5.44	23,610.19	6.76	11,222.16	7.92	$ 65,755.67		23,823.61	13.93	40,266.06	5.83	40,505.11	7.45
											1,666.00							
											$ 64,089.67	7.44						
1916	149,832.26	12.18	23,823.61	13.42	22,127.67	10.94	33,272.14	9.54	18,216.61	12.86	$ 97,440.03		15,740.72	9.24	80,570.06	11.68	69,262.20	12.74
											1,129.25							
											$ 96,310.78	11.19						
1917	186,107.56	15.10	15,740.72	8.87	31,356.10	15.50	42,865.15	12.29	20,652.40	14.58	$110,614.37		3,640.15	2.12	106,072.22	15.38	80,035.34	14.72
											902.00							
											$109,712.37	12.74						
1918	325,037.10	26.36	3,640.15	2.06	56,438.31	27.92	85,636.45	24.53	43,329.88	30.58	$189,044.79	21.95	7,324.63	4.29	181,720.16	26.35	143,316.94	26.37
	$1,233,108.92	100	$177,436.01	100	$202,109.22	100	$349,131.24	100	$141,651.41	100	$870,327.88		$171,006.04	100	$689,683.68	100	$543,425.24	100
											9,638.16	100						
											$860,689.72							

(1) Credited thereto, for lack of better information, the value of the machines constructed in the shops, and charged to property account. The amount is really applicable to material, labor, and overhead. For detail, see schedule following. Percentages are computed on net figures.

(2) Inventory is nothing more than consigned goods.

NET PROFIT SECTION

Year	GROSS PROFIT (From above section) Amount	%	DEBITS: Selling Expense Amount	Administration & General Amount	Deductions from Income Amount	Profit & Loss Charges Amount	Total Debits Amount	CREDITS: Additions to Income Amount	NET DEBITS Amount	%	NET PROFIT Amount	%
1908	$ 21,546.22	3.96	$ 4,040.38	$ 10,050.41	$ 100.48	$	$ 14,191.27	$ 177.99	$ 14,013.28	5.11	$ 7,532.94	2.80
1909	22,106.32	4.08	2,765.10	8,099.67		997.31	11,862.08	283.90	11,578.18	4.22	10,528.14	3.91
1910	22,067.11	4.07	4,314.47	9,510.17		618.28	14,442.92	435.96	14,006.96	5.11	8,060.15	3.00
1911	20,927.60	3.86	4,398.78	9,081.94		339.36	13,820.10	124.52	13,695.58	4.99	7,232.02	2.69
1912	38,264.11	7.03	5,673.56	9,526.33	64.68	433.02	15,697.59	71.40	15,626.19	5.70	22,637.92	8.41
1913	51,425.23	9.47	7,300.83	12,824.85	171.43	1,602.88	21,899.99	898.12	21,001.87	7.65	30,423.36	11.31
1914	33,969.06	6.26	6,996.35	13,526.62	101.42	1,247.57	21,871.96	506.34	21,365.62	7.79	12,603.44	4.69
1915	40,505.11	7.45	6,163.46	12,077.90	61.50	609.82	18,912.68	523.80	18,388.88	6.70	22,116.23	8.21
1916	69,262.20	12.74	7,853.15	13,744.46	568.18	40.67	22,206.46	927.38	21,279.08	7.76	47,983.12	17.83
1917	80,035.34	14.72	8,978.15	15,718.29	1,935.15	194.13	26,825.72	2,404.16	24,421.56	8.90	55,613.78	20.67
1918	143,316.94	26.36	12,344.58	(1)77,589.15	9,015.04	909.60	99,858.37	885.68	98,972.69	36.07	44,344.25	16.48
	$543,425.24	100	$70,828.81	$191,749.79	$12,017.88	$6,992.66	$281,589.14	$7,239.25	$274,349.89	100	$269,075.35	100

(1) Administration expense for 1918 contains additional salary of officers of $40,000.63.

The item taxes, in the foregoing analysis, contains federal taxes on income and profits as follows:

1917, $741.75; 1918, $5,285.50

The profits withdrawn by the two officers (also owners of the stock) in lieu of dividends had been:

1908.....	$ 10,000.00
1909.....	7,500.00
1910.....	5,500.00
1911.....	6,000.00
1912.....	10,980.00
1913.....	14,970.00
1914.....	24,970.00
1915.....	18,475.00
1916.....	24,975.00
1917.....	25,975.00
1918.....	45,194.00
	$194,539.00

The only inventories used for the purpose of closing the books and ascertaining profits had been the finished goods consigned to agents, as follows:

January 1, 1908.....	$13,754.60
December 31, 1908...	16,474.34
" 1909...	16,828.06
" 1910...	16,750.00
" 1911...	16,765.74
" 1912...	16,658.79
" 1913...	17,000.00
" 1914...	20,000.00
" 1915...	23,823.61
" 1916...	15,740.72
" 1917...	3,640.15
" 1918...	7,324.63

Other facts relating to merchandise were:

	Net Sales	Purchases	Labor
1908.....	$ 54,040.56	$ 9,611.21	$ 18,034.43
1909.....	49,493.42	8,012.94	15,311.82
1910.....	62,902.34	11,869.13	23,480.49
1911.....	60,012.81	10,562.25	26,266.01
1912.....	75,640.33	11,447.66	23,532.21
1913.....	102,538.79	14,384.03	27,804.70
1914.....	86,732.58	15,376.60	29,317.65
1915.....	80,771.17	10,923.32	23,610.19
1916.....	149,832.26	22,127.67	33,272.14
1917.....	186,107.56	31,356.10	42,865.15
1918.....	325,037.10	56,438.31	85,636.45
	$1,233,108.92	$202,109.22	$349,131.24

The analysis of such accounts as the books of the company contained had, of necessity, been a cursory one. It had, however, brought forth the fact that, during the eleven years of its existence, the company had built up its own tools, machines and plant equipment, to a considerable extent. Such attempts as had been made to capitalize the amount of expenditures pertaining to the construction had been spasmodic and thoroughly inadequate. The question of investigating the true conditions was decided in the negative, owing to the belief that the theory of the statement to be presented to the special audit board would reveal the exact amount.

The item of rent $4,078.50, stated above in the text of the problem, was originally $4,800, but was reduced to $4,078.50 through the rental received from a tenant occupying a small part of the factory floor.

REQUIRED:

(a) The invested capital of the company for the eleven-year period.

(b) The report submitted to the Special Audit Board of the Internal Revenue Department in support of the company's contention.

Solution of Problem No. 13

Argument submitted to the Special Audit Board, Internal Revenue Department, Washington, D. C., in re: Income and Excess Profits Taxes.

Gentlemen:

The A K Z Company of Providence, R. I., appears in this case in its capacity as purchaser of the controlling interest in the stock of the M V Company of Bridgeport, Conn., and therefore as the party responsible for any additional taxes which may be imposed upon the latter company.

The object of the argument is to comment upon, refute, and cause to be revised, the findings of the revenue agent who had charge of the investigation of the books, records, and accounts of the M V Company, for the purpose of verifying the accuracy of the company's income tax reports for the year ended December 31, 1918.

ARGUMENT

The M V Company, of Bridgeport, Conn., was organized on January 1, 1908, for the purpose of taking over the manufacturing business of M and V, partners.

The property of the copartnership when taken over by the corporation was worth gross $142,438.40, but was subject to liabilities to outsiders amounting to $9,555.85. For the net assets of $132,882.55, the company issued stock in the amount of $100,000; this produced a paid-in surplus of $32,882.55, which consisted of $3,749.60 set aside for possible losses of accounts receivable, and $29,132.95 carried as paid-in surplus.

During the year 1908, the paid-in surplus referred to above was written off, at the expense of the asset account Goods in Process and Raw Materials ($29,132.95). This was done in pursuance of a policy, adopted at the time, in virtue of which profits were to be computed without consideration of inventories. other than the inventory of goods finished and consigned to agents.

This policy was carried consistently down to the end of 1918, when its disastrous effect upon the invested capital exemption for tax purposes became apparent. Therefore, at the end of 1918, accountants were engaged to take, value, price, and record inventories of all the physical values of the plant.

As a result of the work of the accountants, the following values were obtained, which we compare here with the original values acquired by the company, in order to make the comparison serve as a basis for our argument.

THE M V COMPANY, BRIDGEPORT, CONN.

COMPARATIVE GENERAL BALANCE SHEETS

At January 1, 1908, and at December 31, 1918

A S S E T S	Jan.1,1908	Dec.31,1918	Increases	Decreases
Machinery	$ 15,715.00	$ 82,354.00	$ 66,639.00	$
Tools	6,829.77	38,486.20	31,656.43	
Office Furniture	1,040.85	2,450.00	1,409.15	
Automobile		206.37	206.37	
Patents	24,328.01	29,040.22	4,712.21	
Patterns and Drawings	1,500.00	7,500.00	6,000.00	
Finished Goods Consigned	13,754.60	7,324.63		6,429.97
Partly Finished Goods and Raw Materials	29,132.95	107,857.66	78,724.71	
Cash	10,634.32	18,461.27	7,826.95	
Accounts Receivable	37,496.03	62,699.29	25,203.26	
Bills Receivable	711.80	454.76		257.04
Investments in Stocks and Bonds	48.25	50,685.00	50,636.75	
Prepaid Insurance		488.25	488.25	
Organization Expense	1,246.82			1,246.82
Total	$142,438.40	$408,007.65	$273,503.08	$7,933.83

L I A B I L I T I E S	Jan.1,1908	Dec.31,1918	Decreases	Increases
Capital Stock	$100,000.00	$100,000.00	$	$
Bills Payable	3,300.00	1,025.78	2,274.22	
Accounts Payable	5,489.99	13,428.44		7,938.45
Accrued Wages, etc.	765.86	1,921.71		1,155.85
Reserve for Accounts Receivable	3,749.60	3,325.23	424.37	
Reserve for Depreciation		17,432.61		17,432.61
Surplus	29,132.95	270,873.88		241,740.93
Total	$142,438.40	$408,007.65	$2,698.59	$268,267.84

Therefore, as between the two periods, January 1, 1908, and December 31, 1918, the net reinvested wealth of the M V Company has increased:

Increase of Assets		$273,503.08
Decrease of Liabilities to Outsiders		2,274.22
		$275,777.30
Decrease of Assets	$7,933.83	
Increase of Liabilities to Outsiders	9,094.30	17,028.13
Gross Increase of Invested Wealth		$258,749.17
Deduct Reserve for Depreciation		17,432.61
Net Increase of Invested Wealth		$241,316.56

The net difference in invested values, as between the balance sheet submitted by the accountants at December 31, 1918 (as given in the foregoing), and the results shown by the books of account before adjustments were made by the accountants, was $222,199.73. This difference arose from the newly recorded inventories (raw materials $22,568.75; goods in process $85,288.91; total $107,857.66); from the increased valuation of machinery $16,774.12, tools $14,765.77, patterns and drawings $6,000; from the writing back of patents $29,040.22, which had been written off during the eleven-year period; and from a quantity of other adjustments of physical values amounting, net, to $47,761.96.

Considering the above difference in the light of its effect upon the invested capital of previous periods, the accountants assumed that the increase of wealth which it represented had all been accumulated as of January 1, 1918. Therefore, they considered it as capital invested for the taxable year, and

established the income tax report accordingly. But, as this affected materially the reports rendered by the company in previous years, the accountants divided $222,199.73 by 9, and assigned to each and every year between January 1, 1909, and January 1, 1918, an increase of invested capital equivalent to 1/9th of the stated sum. As a logical consequence, they revised all previous reports, and sent a check to the Internal Revenue Department to cover additional taxes on unreported earnings.

That the method used by the accountants was manifestly unfair, inadequate, and unscientific, is evidenced by the fact that the check was returned, and, further, by the complete disregard of the figures established by the accountants for 1918 and for previous years, on the part of the revenue agent whose report has caused the revision of the M V Company's taxes and the tentative assessment of $77,185.39.

Therefore, we beg to be permitted to ignore all previous reports and adjustments thereof, and, reverting to the first part of this argument, state our case as if it were entirely new and unaffected by past errors.

Basing our contention upon immutable principles of accounting, we submit that, as between two periods:

The difference between:

1. Increases of assets and decreases of liabilities
2. Decreases of assets and increases of liabilities

Equal profits, provided:

1. There has been no increase of capital through new contributions; if there has been an increase of capital, the difference between increases and decreases, minus the new capital, represents profits.

2. There has been no withdrawal of capital; if there has been a withdrawal, the difference between increases and decreases, plus withdrawals, represents profits.

Therefore, we state that the profits made by the M V Company between January 1, 1908, and December 31, 1918, have been the sum of:

1. Profits reinvested, as evidenced by the increase of net wealth resulting from the opposition of the balance sheets at January 1, 1908, and at December 31, 1918.

2. All profits withdrawn in lieu of dividends by the officers of the company who, in this case were the owners of the capital stock, whether such withdrawals have been in the form of dividends in the strict sense of the term, or in the form of additional salaries paid to the officers at the eleventh hour out of accumulated profits, and rejected by the revenue agent as deductible expense.

The detail of the above group is as follows:

1. Increase of net wealth, as per balance sheets as given previously in the text of this argument.. $241,316.56

2. Drawings by officers:

(a) In lieu of dividends:

1908.....	$10,000.00	
1909.....	7,500.00	
1910.....	5,500.00	
1911.....	6,000.00	
1912.....	10,980.00	
1913.....	14,970.00	
1914.....	24,970.00	
1915.....	18,475.00	
1916.....	24,975.00	
1917.....	25,975.00	
1918.....	45,194.00	$194,539.00

(b) Under form of additional salaries, disallowed as an expense..... 40,000.63

Total (a) and (b)..... 234,539.63

Total profits for eleven years..... $475,856.19

Our plan is as follows:

1. Find an equitable basis for the distribution of the profits over the eleven-year period.

2. Distribute the profits according to the basis adopted.

3. To the profits so distributed, add recoverable expense, other than cost, and obtain true gross profits.

4. Using the known gross profits as a basis, obtain the cost of the goods sold, and therefrom the closing inventories of raw materials and goods in process for each year of the eleven-year period.

5. Apply commercial, administrative, and other expenses to gross profits, and obtain net profits.

6. Deduct dividends from net profits, and obtain the part of reinvested capital represented by reinvested surplus, subject to reserves the cost of which has been allowed.

To carry out our plan, we will first attempt to obtain a series of possible bases for distribution of profits.

Using the results of the books of accounts before the recording therein of any of the adjustments made by the accountants in 1918, we are in a position to gather facts in such a manner as to make them subject to the application of percentages of each factor, for each period, to the total of similar factors for the whole period. Therefore, we submit the following exhibit:

Year	
1908	
1909	
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1911	
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M V COMPANY

COMPARATIVE STATEMENTS OF INCOME AND PROFIT AND LOSS

For the Eleven Years ended December 31, 1918

GROSS PROFIT SECTION

Year	SALES: Net Sales Amount	%	Initial Inventory Amount	%	Purchases Amount	%	Labor Amount	%	Overhead Amount	%	(1) Available Amount	%	(2) Closing Inventory Amount	%	Cost of Goods Sold Amount	%	GROSS PROFIT Amount	%
1908	$ 54,040.56	4.39	$ 13,754.60	7.75	$ 9,611.21	4.75	$ 18,034.43	5.16	$ 7,568.44	5.34	$ 48,968.68	5.81	$ 16,474.34	9.63	$ 32,494.34	4.71	$ 21,546.22	3.96
1909	49,493.42	4.02	16,474.34	9.28	8,012.94	3.96	15,311.82	4.38	4,416.06	3.12	44,215.16	5.14	16,828.06	9.84	27,387.10	3.97	22,106.32	4.08
1910	62,902.34	5.03	16,828.06	9.48	11,869.13	5.87	23,480.49	6.73	5,407.55	3.82	57,585.23	6.59	16,750.00	9.79	40,835.23	5.92	22,067.11	4.07
1911	60,012.81	4.88	16,750.00	9.45	10,562.25	5.22	26,266.01	7.52	4,345.69	3.08	57,923.95		16,765.74	9.79	39,085.21	5.67	20,927.60	3.86
											2,073.00							
											$ 55,850.95	8.49						
1912	75,640.33	6.14	16,765.74	9.45	11,447.66	5.66	23,532.21	6.74	4,616.71	3.26	$ 56,362.32		16,658.79	9.74	37,376.22	5.42	38,264.11	7.02
											2,327.31							
											$ 54,035.01	8.28						
1913	102,538.79	8.32	16,658.79	9.39	14,384.03	7.13	27,804.70	7.96	9,999.64	7.06	$ 68,847.16		17,000.00	9.94	51,113.56	7.42	51,425.23	9.47
											733.80							
											$ 68,113.56	7.91						
1914	86,732.58	7.04	17,000.00	9.58	15,376.60	7.90	29,317.65	8.39	11,876.27	8.38	$ 73,570.52		20,000.00	11.69	52,763.52	7.65	33,969.06	6.26
											807.00							
											$ 72,763.52	8.46						
1915	80,771.17	6.56	20,000.00	11.27	10,923.32	5.44	23,610.19	6.76	11,222.18	7.92	$ 65,755.67		23,823.61	13.93	40,266.06	5.83	40,505.11	7.45
											1,666.00							
											$ 64,089.67	7.44						
1916	149,832.26	12.16	23,823.61	13.42	22,127.67	10.94	33,272.14	9.54	18,216.61	12.86	$ 97,440.03		15,740.72	9.24	80,570.06	11.68	69,262.20	12.74
											1,129.25							
											$ 96,310.78	11.19						
1917	186,107.56	15.10	15,740.72	8.87	31,356.10	15.50	42,865.15	12.29	20,652.40	14.58	$110,614.37		3,640.15	2.12	106,072.22	15.38	80,035.34	14.72
											902.00							
											$109,712.37	12.74						
1918	325,037.10	26.36	3,640.15	2.06	56,438.31	27.92	85,636.45	24.53	43,329.88	30.58	$189,044.79	21.95	7,324.63	4.29	181,720.16	26.35	143,316.94	26.37
											$870,327.88							
	$1,233,108.92	100	$177,436.01	100	$202,109.22	100	$349,131.24	100	$141,651.41	100	9,638.16	100	$171,006.04	100	$689,683.68	100	$543,425.24	100
											$860,689.72							

(1) Credited thereto, for lack of better information, the value of the machines constructed in the shops, and charged to property account. The amount is really applicable to material, labor, and overhead. For detail, see schedule following. Percentages are computed on net figures.

(2) Inventory is nothing more than consigned goods.

NET PROFIT SECTION

Year	GROSS PROFIT (From above section) Amount	%	DEBITS: Selling Expense Amount	Administration & General Amount	Deductions from Income Amount	Profit & Loss Charges Amount	Total Debits Amount	CREDITS: Additions to Income Amount	NET DEBITS Amount	%	NET PROFIT Amount	%
1908	$ 21,546.22	3.96	$ 4,040.38	$ 10,050.41	$ 100.48	$	$ 14,191.27	$ 177.99	$ 14,013.28	5.11	$ 7,532.94	2.80
1909	22,106.32	4.08	2,765.10	8,099.67		997.31	11,862.08	283.90	11,578.18	4.22	10,528.14	3.91
1910	22,067.11	4.07	4,314.47	9,510.17		618.28	14,442.92	435.96	14,006.96	5.11	8,060.15	3.00
1911	20,927.60	3.86	4,398.78	9,081.94		339.38	13,820.10	124.52	13,695.58	4.99	7,232.02	2.69
1912	38,264.11	7.03	5,673.56	9,526.33	64.68	433.02	15,697.59	71.40	15,626.19	5.70	22,637.92	8.41
1913	51,425.23	9.47	7,300.83	12,824.85	171.43	1,602.88	21,899.99	898.12	21,001.87	7.65	30,423.36	11.31
1914	33,969.06	6.26	6,996.35	13,526.62	101.42	1,247.57	21,871.96	506.34	21,365.62	7.79	12,603.44	4.68
1915	40,505.11	7.45	6,163.46	12,077.90	61.50	609.82	18,912.68	523.80	18,388.88	6.70	22,116.23	8.21
1916	69,262.20	12.74	7,853.15	13,744.46	568.18	40.67	22,206.46	927.38	21,279.08	7.76	47,983.12	17.83
1917	80,035.34	14.72	8,978.15	15,718.29	1,935.15	194.13	26,825.72	2,404.16	24,421.56	8.90	55,613.78	20.67
1918	143,316.94	26.36	12,344.58	(1)77,589.15	9,015.04	909.60	99,858.37	885.68	98,972.69	36.07	44,344.25	16.48
	$543,425.24	100	$70,828.81	$191,749.79	$12,017.88	$6,992.66	$281,589.14	$7,239.25	$274,349.89	100	$269,075.35	100

(1) Administration expense for 1918 contains additional salary of officers of $40,000.63.

Considering the percentages given in the foregoing statements, we obtain:

TABLE SHOWING PERCENTAGES OF EARNINGS, COST, GROSS PROFIT, NET PROFIT, ON BASIS OF BOOKS

	Sales	Initial Inventory Fin.Goods, Purchases, Wages, Overhead	Closing Inventory Finished Goods	Cost of Goods Sold	Gross Profit	Selling, Administering, Financing, etc.	Net Profits	Total	Average
Pre-war Years:									
1908.....	4.39	5.81	9.63	4.71	3.96	5.11	2.80	36.41	5.20
1909.....	4.02	5.14	9.84	3.97	4.08	4.22	3.91	35.18	5.03
1910.....	5.03	6.59	9.79	5.92	4.07	5.11	3.00	39.51	5.64
1911.....	4.88	6.49	9.79	5.67	3.86	4.99	2.69	38.37	5.48
1912.....	6.14	6.28	9.74	5.42	7.03	5.70	8.41	48.71	6.96
1913.....	8.32	7.91	9.94	7.42	9.47	7.65	11.31	62.02	8.86
Total....	32.78	38.22	58.73	33.11	32.47	32.78	32.12	260.20	37.17
War Period - Income Taxes:									
1914.....	7.04	8.46	11.69	7.65	6.26	7.79	4.69	53.58	7.65
1915.....	8.56	7.44	13.93	5.83	7.45	6.70	8.21	56.12	8.02
1916.....	12.16	11.19	9.24	11.68	12.74	7.76	17.83	82.60	11.80
Total....	25.76	27.09	34.86	25.16	26.45	22.25	30.73	192.30	27.47
War Period - Income, War Profits and Excess Profits:									
1917.....	15.10	12.74	2.12	15.38	14.72	8.90	20.67	89.63	12.81
1918.....	26.36	21.95	4.29	26.35	26.36	36.07	16.48	157.87	22.55
Total....	41.46	34.69	6.41	41.73	41.08	44.97	37.15	247.50	35.36
Total.....	100	100	100	100	100	100	100	700	100

Considering the foregoing bases in regard to their probable value, we believe that:

1. The basis of percentages of the component part of a cost obtained without reference to initial or closing inventories of working assets is meaningless.

2. The basis of the percentages of cost of selling, administering, financing, etc., is worthless.

3. The basis of the percentages of net profits ignores too many elements of cost recovered to give even a surface indication of the truth.

4. The average percentage of percentages is misleading because it combines all issues.

Therefore, we have adopted the basis of net yearly sales to the total sales of the whole period; we have done this with full realization of the fact that it is probably the least favorable to our case.

Having selected a basis for the distribution of profits, we will now distribute, on the basis of the net sales, the following gross profits:

(1) Net increase of wealth as shown by the opposition of the balance sheets at January 1, 1908, and at December 31, 1918 (depreciated book values).....	$241,316.56
(2) Drawings by officers in lieu of dividends.....	194,539.00
(3) Additional salaries of officers, paid out of surplus, disallowed by internal revenue agent.	40,000.63
Total Profits.....	$475,856.19

(4) Commercial and other expenses recoverable through sales price (as per statement submitted in the foregoing):

Selling Expense.....	$ 70,828.81	
Administration.....	191,749.79	
Deductions from Income.....	12,017.88	
Profit and Loss Charges.....	6,992.66	
	$281,589.14	
Additions to Income, after deduction of the machinery deducted from cost.....	7,239.25	274,349.89
		$750,206.08

Having distributed the foregoing sum on the basis of the net sales, we submit, attached hereto, an exhibit showing eleven statements of income, from January 1, 1908, to December 31, 1918, with all initial and closing inventories of raw materials and goods in process (combined) reconstituted, with the exception of the initial inventory at January 1, 1908, and the closing inventory at December 31, 1918.

In working out the exhibit referred to, we have ascertained that during the eleven-year period the M V Company incurred $80,051.01 of capital expenditures, which, in accordance with the system of accounts in vogue in its accounting department, were only capitalized to a negligible extent. The amount represents, in fact, the excess of expenditures, as reflected by the books, over the recoverable cost of manufacture required to arrive at the closing inventory of raw materials and goods in process, taken and priced by certified public accountants as at December 31, 1918.

During the course of our examination of the books, records, and accounts of the M V Company for the purpose of this argument, we ascertained that the company had built up for its own account a quantity of machinery, shop and hand tools, and factory equipment in general, which had never been credited to cost and capitalized, with the exception of a few items, amounting approximately to $10,000. As we had no knowledge of the amount of material, labor, and overhead that this capitalizable expenditure represented, we did not attempt to estimate it, relying upon the fact that, if we were to apply theory of accounts in the establishment of the inventories for the eleven-year period upon the basis of two positive elements, the opening and the closing inventories, we would have to face the true figure sought.

Applying to the capitalizable expense the same percentage basis as we applied to profits (percentage of net sales, for lack of a more positive basis), we have deducted the said expense from the elements of cost of manufacture.

As to the expenses of the year 1918 (other than additional salaries), which have been included in manufacturing cost by the company, and which have been disallowed by the revenue agent because they were capitalizable, we have deducted them in arriving at the cost of the goods sold. These expenses are:

(1) Additional Rent, 1918, paid to officers, owners of the building.....	$2,400.00
(2) Hardening Room Expense, 1918.....	3,258.81
(3) Other Factory Overhead Expense, 1918.....	3,821.09
	$9,479.90

In computing the gross profit for the eleven-year period, we have added to the balance sheet differences, i.e., $241,316.56, and to the profits withdrawn, i.e., $234,539.63, all recoverable expenses, whether allowable as deductions or not. But when returning to the gross profits, we have excluded as recovered expense:

Donations and Charities	not allowed.....	$ 2,135.50
Federal Income Taxes	" "	6,027.25
Additional Salaries	" "	40,000.63
		$48,163.38

Coming down to the structure of the exhibit, it is made up as follows:

1. The gross profits (obtained as stated above) deducted from the net sales, produces:

   The Cost of Goods Sold

2. The cost of goods sold, added to the closing inventory of finished goods consigned, produces:

   The Cost of Finished Goods Available for Sale

3. The initial inventory of finished goods, deducted from the amount available for sale, produces:

   The Cost of Goods Manufactured

As the proposition is now to find the closing inventory of raw materials and goods in process, we return to the top of the exhibit, under the caption "Remainder," and we find that:

4. The cost of the elements referred to as "Available for Manufacturing," less the cost of goods manufactured (see 3 above), produces:

   The Closing Inventory of Raw Materials and Goods in Process

5. The closing inventory of each period is the initial inventory of each subsequent period.

Believing that we have sufficiently expressed our method of obtaining results, we submit:

1. Statement of Income and Profit and Loss for eleven years, showing reconstructed inventories and reinvested surplus.

2. Schedule supporting the items "Overhead" and "Recoverable Expense" used in the preparation of the statements.

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M V COMPANY

STATEMENT OF INCOME AND PROFIT AND LOSS

For the Eleven-Year Period Ended December 31, 1918

SHOWING RECONSTITUTED INVENTORIES AND REINVESTED SURPLUS

	1908	1909	1910	1911	1912	1913	1914	1915	1916	1917	1918	Total
NET SALES	$54,040.56	$49,483.42	$62,902.34	$60,012.81	$ 75,640.38	$102,508.75	$ 86,732.58	$ 80,771.17	$149,832.26	$186,107.56	$365,087.10	$1,[illegible]
COST OF GOODS SOLD:												
Purchases	$ 9,211.21	$ 6,012.94	$11,[illegible].13	$10,582.25	$ 11,447.66	$ 14,384.03	$ 15,376.60	$ 10,923.32	$ 28,127.67	$ 31,356.10	$ 56,[illegible].31	$ 202,[illegible]
Labor	18,034.43	15,311.82	23,480.[illegible]	26,266.01	23,532.21	27,804.70	29,317.65	23,[illegible].19	33,272.14	42,[illegible].15	85,[illegible].45	[illegible]
Overhead (see schedule)	7,568.44	4,[illegible].06	5,407.55	4,345.69	4,[illegible].71	9,990.64	11,876.27	11,222.16	15,[illegible].61	20,[illegible].40	43,329.88	141,651.41
	$35,214.08	$27,740.82	$40,[illegible].17	$41,[illegible].95	$ 3[illegible],598.58	$ 52,186.37	$ 56,570.52	$ 45,755.67	$ 76,[illegible].42	$ 94,[illegible].65	$185,[illegible].64	$ [illegible]
Deductions:												
(a) 1918 Expenses Disallowed, or Capitalizable, according to revenue agent (see text of argument)	$	$	$	$	$	$	$	$	$	$	$ [illegible].00	$ [illegible].00
(b) Other Capitalizable Expenses (see text)	3,514.24	3,[illegible].06	4,[illegible].57	3,[illegible].49	4,[illegible].14	6,[illegible].25	5,635.60	5,251.29	9,734.21	12,[illegible].70	21,[illegible].[illegible]	[illegible]
Total Deductions	$ 3,514.24	$ 3,[illegible].06	$ 4,[illegible].57	$ [illegible],[illegible].49	$ 4,[illegible].14	$ [illegible],[illegible].25	$ 5,[illegible].60	$ 5,251.29	$ 9,734.21	$ 12,067.70	$ 30,[illegible].38	$ [illegible]
Remainder	$31,699.84	$24,[illegible].76	$36,[illegible].40	$37,267.46	$ 34,[illegible].44	$ 45,[illegible].12	$ 50,[illegible].92	$ 40,504.38	$ 63,[illegible].21	$ 82,[illegible].95	$154,[illegible].[illegible]	$ [illegible]
Initial Inventory, Raw Material, and Goods in Process	28,[illegible].95	38,[illegible].[illegible]	44,[illegible].08	56,207.69	70,364.15	74,[illegible].26	77,547.48	93,[illegible].71	99,118.85	100,[illegible].87	104,[illegible].42	[illegible]
Available for Manufacture	$60,[illegible].70	$63,[illegible].[illegible]	$81,[illegible].48	$93,475.35	$105,[illegible].59	$119,[illegible].38	$126,[illegible].40	$134,170.09	$163,[illegible].08	$183,[illegible].[illegible]	$[illegible].70	$[illegible]
Less: Inventory, Raw Material, and Goods in Process	38,[illegible].85	44,[illegible].[illegible]	56,207.69	70,364.15	74,[illegible].26	77,547.48	93,[illegible].71	99,118.85	100,[illegible].87	104,[illegible].42	107,[illegible].[illegible]	[illegible]
Cost of Goods Manufactured	$21,[illegible].54	$19,[illegible].55	$24,881.77	$23,111.20	$ 30,[illegible].33	$ 42,[illegible].90	$ 34,[illegible].[illegible]	$ 35,051.24	$ 62,[illegible].19	$ 78,[illegible].40	$[illegible],[illegible].04	$ [illegible]
Initial Inventory, Finished Goods Consigned	16,754.80	16,[illegible].34	16,626.[illegible]	16,750.00	16,765.74	16,[illegible].79	17,000.00	20,000.00	23,[illegible].61	15,740.72	3,[illegible].15	[illegible]
Finished Goods available for sale	$38,[illegible].54	$35,[illegible].89	$41,[illegible].83	$39,861.20	$ 47,455.07	$ 58,[illegible].69	$ 51,[illegible].69	$ 55,051.24	$ 85,[illegible].80	$ 94,[illegible].12	$155,069.19	$ [illegible]
Closing Inventory, Finished Goods Consigned	16,474.34	16,[illegible].[illegible]	16,750.00	16,765.74	16,[illegible].79	17,000.00	20,000.00	23,823.61	15,740.72	3,[illegible].15	7,[illegible].83	[illegible]
Cost of Goods Sold	$19,137.20	$18,785.63	$24,959.83	$23,095.46	$ 30,[illegible].28	$ 41,[illegible].[illegible]	$ 31,[illegible].[illegible]	$ 31,227.63	$ 70,[illegible].08	$ 80,[illegible].[illegible]	$[illegible],[illegible].43	$ [illegible]
GROSS PROFIT:												
(a) Apportionment of Profits (see text of argument)	$20,890.08	$[illegible],129.41	$23,[illegible].55	$23,[illegible].77	$ 29,217.[illegible]	$ 39,[illegible].23	$ 33,500.27	$ 31,[illegible].16	$ 57,[illegible].10	$ 71,[illegible].[illegible]	$[illegible],[illegible].[illegible]	$ [illegible]
(b) Expenses Recoverable (see schedule)	14,013.28	11,578.18	14,[illegible].96	13,[illegible].58	15,826.19	21,001.87	21,365.62	18,388.88	21,279.08	24,421.[illegible]	[illegible]	[illegible]
Total	$34,903.36	$30,707.59	$37,[illegible].51	$36,[illegible].35	$ 44,844.05	$ 60,[illegible].10	$ 54,865.89	$ 49,605.04	$ 79,[illegible].18	$ 96,[illegible].[illegible]	$224,[illegible].[illegible]	$ [illegible]
Deductions, (Taxes, Charities, Additional Salaries, not allowed)								61.50	78.00	888.25	47,135.63	48,163.36
Balance Gross Profit	$34,903.36	$30,707.59	$37,[illegible].51	$36,[illegible].35	$ 44,844.05	$ [illegible].10	$ 54,865.89	$ 49,543.54	$ 79,[illegible].18	$ 95,387.59	$177,[illegible].54	$ [illegible]
EXPENSES OF SELLING, ADMINISTRATION:												
Portion allowable as deductions under the law	14,013.28	11,578.18	14,[illegible].96	13,[illegible].58	15,826.19	21,001.87	21,365.62	18,327.38	21,201.08	23,[illegible].31	51,[illegible].[illegible]	[illegible]
NET PROFIT	$20,890.08	$19,[illegible].41	$23,[illegible].55	$23,[illegible].77	$ 29,[illegible].[illegible]	$ 39,[illegible].23	$ 33,500.27	$ 31,[illegible].16	$ 57,[illegible].10	$ 71,[illegible].[illegible]	$[illegible],[illegible].[illegible]	$ [illegible]
DIVIDENDS AND SALARIES AS DIVI	10,296.30	9,[illegible].49	11,797.34	11,445.53	14,[illegible].[illegible]	18,[illegible].70	16,511.59	15,[illegible].[illegible]	28,520.02	35,415.[illegible]	[illegible]	[illegible]
REINVESTED SURPLUS	$10,593.78	$ 9,700.92	$12,138.21	$11,776.24	$ 14,817.13	$ 20,077.53	$ 16,988.68	$ 15,830.36	$ 29,344.08	$ 36,438.80	$ [illegible].[illegible]	$ [illegible]
Percentage of Cost of Goods Sold to Sales	35.41	37.96	39.68	36.72	40.71	40.91	36.74	38.66	47.23	48.75	45.46	43.06
Percentage of Gross Profit to Sales	64.59	62.04	60.32	61.52	59.29	59.09	63.26	61.34	52.77	51.25	54.54	56.93

M V COMPANY

SCHEDULE SUPPORTING THE OVERHEAD COST OF MANUFACTURE

AND THE EXPENSES RECOVERABLE THROUGH SALE PRICE

For the Eleven-Year Period Ended December 31, 1918

	1908	1909	1910	1911	1912	1913	1914	1915	1916	1917	1918
FACTORY EXPENSES:											
Factory Supplies and Expenses	$ 1,581.30	$ 1,941.54	$ 2,533.11	$ 1,773.00	$ 1,948.31	$ 3,001.93	$ 3,429.82	$ 3,048.53	$ 4,157.34	$ 4,556.33	$11,8[illegible].74
Repairs to Machinery and Tools	1,019.32	65.44	238.28	[illegible]	21.20	20.00		110.67	118.49	754.40	1,201.00
Freight and Expressage Inward	1,034.80	[illegible]	951.41	200.33	321.48	1,[illegible]	1,537.78	1,2[illegible]1.77	1 485.21	2,131.32	2,[illegible]
Depreciation of Machinery and Tools	2,583.05					3,737.57	3,920.05	4,21[illegible].80	9,75[illegible].34	8,103.51	13,11[illegible].70
Rent of Factory	1,200.00	1,200.00	1,303.27	1,218.00	1,200.00	1,200.00	1,800.00	2,400.00	2,400.00	2,400.00	4,078.50 (Net)
Insurance of Machinery, etc	150.37	525.45	391.48	450.77	527.02	380.48	964.84	182.[illegible]	301.60	490.36	445.73
Belting Destroyed										525.96	883.55
Wipers and Washing Expense									49.14	122.65	282.[illegible]
Hardening Room Expense											4, [illegible].84
Maintenance of Automobile										441.10	1,293.30
Fuel, Light, etc										1,146.17	3,139.17
Total	$ 7,568.44	$ 4,416.06	$ 5,407.55	$ 4,345.[illegible]	$ 4,318.71	$ 9,999.34	$11,[illegible]76.27	$11,222.16	$18,21[illegible].51	$20,652.40	$43,329.88
RECOVERABLE EXPENSE:											
SELLING EXPENSE:											
Advertising	$ 349.01	$ 466.57	$ 1,520.49	$ 740.50	$ 1,192.77	$ 1,420.30	$ 900.58	$ 1,215.05	$ 1,711.31	$ 3,072.33	$ 3,272.50
Commissions	2,144.00	1,109.41	1,383.82	1,591.89	1,475.09	2,543.1[illegible]	3,365.61	2,707.21	2,[illegible]11.37	3,[illegible]54.07	[illegible],[illegible]3.[illegible]
Traveling	1,547.37	1,189.12	1,410.16	2,066.39	3,005.70	3,537.[illegible]4	2,750.16	2,240.50	3,[illegible]29.87	2,140.[illegible]	2,332.39
Total	$ 4,040.38	$ 2,765.10	$ 4,314.47	$ 4,398.78	$ 5,673.56	$ 7,500.83	$ 6,996.35	$ 6,163.46	$ 7,[illegible]58.15	$ 8,978.15	$12,344.58
ADMINISTRATION AND GENERAL:											
Salaries	$ 7,514.08	$ 6,952.34	$ 7,346.70	$ 7,754.83	$ 8,076.69	$10,597.07	$10,[illegible]48.26	$ 9,947.45	$11,092.63	$12,462.15	$73,741.11
Legal Expense	305.59	129.85	232.17	119.06	60.03	140.79	160.99	201.04	219.[illegible]2	217.84	180.64
Postage	330.61	279.00	374.54	471.89	423.16	745.93	196.76	132.49	181.09	105.24	642.44
General Expense	1,900.13	658.65	1,526.53	519.29	757.95	1,075.15	2,060.79	1,785.92	2,251.12	2,933.06	3,024.96
Experimental Expense		79.83									
Miscellaneous Disbursements			30.23	216.87	208.50	265.91	159.82	11.00			
Total	$10,050.41	$ 8,099.67	$ 9,510.17	$ 9,081.94	$ 9,526.33	$12,824.85	$13,526.62	$12,077.90	$13,744.46	$15,718.29	$77,589.15
DEDUCTIONS FROM INCOME:											
Discount and Interest	$ 100.48	$	$	$	$ 64.68	$ 171.43	$ 101.[illegible]2	$	$ 490.18	$ 1,005.46	$ 1,730.45
Benefits and Charities								81.50	78.00	146.50	1,849.50
Taxes										783.19	5,435.09
Total	$ 100.48	$	$	$	$ 64.68	$ 171.43	$ 101.42	$ [illegible].50	$ 568.18	$ 1,935.15	$ 9,015.04
PROFIT AND LOSS CHARGES:											
Accounts Receivable written off, less recoveries	$	$ 997.31	$ 618.28	$ 339.38	$ 433.02	$ 1,602.88	$ 1,247.57	$ 609.82	$ 40.67	$ 194.13	$ 909.60
TOTAL	$14,191.27	$11,862.08	$14,442.92	$13,820.10	$15,697.59	$21,899.99	$21,871.96	$18,912.68	$22,206.46	$26,825.72	$99,858.37
ADDITIONS TO INCOME:											
Discount and Interest	$ 177.99	$ 283.90	$ 435.96	$ 124.52	$ 71.40	$ 898.12	$ 506.34	$ 523.80	$ 927.38	$ 2,404.16	$ 885.68
NET RECOVERABLE EXPENSE	$14,013.28	$11,578.18	$14,006.96	$13,695.58	$15,626.19	$21,001.87	$21,365.62	$18,388.88	$21,279.08	$24,421.56	$98,972.69

In conclusion, we submit a table of Income and Invested Capital which we beg you to compare, as to probability, with the results obtained by the revenue agent.

	Income	Additions to Surplus End of Year	Capital & Surplus (Depreciation deducted) End of Year
1908.....	$ 20,890.08	$ 10,593.78	$108,010.73
1909.....	19,129.41	9,700.92	117,711.65
1910.....	23,935.55	12,138.21	129,849.86
1911.....	23,221.77	11,776.24	141,626.10
1912.....	29,217.86	14,817.13	156,443.23
1913.....	39,591.23	20,077.53	172,783.19
1914.....	33,500.27	16,988.68	185,851.82
1915.....	31,216.16	15,830.36	197,463.88
1916.....	57,864.10	29,344.08	217,048.12
1917.....	71,854.28	36,438.80	245,383.41
1918.....	125,435.48	63,610.83	295,880.54
	$475,856.19	$241,316.56	

The depreciation used in the above table as a deduction from the reinvested surplus is the one used in the establishment of the schedule supporting the exhibit.

We beg to call particular attention to the percentages of cost of goods sold to sales, and of gross profits to sales, as appearing in our exhibit. We believe that they are a justification of our method of procedure.

P R O B L E M N O. 14

VALUATION OF PATENTS

PROBLEM NO. 14

VALUATION OF PATENTS

Text of the Problem

During the year 1911, James Richardson and Charles Jones engaged an attorney to search the records, with a view to ascertaining the possibility of patenting an invention made by them, consisting in a packing ring of an entirely new design, depending, for its manufacture, upon a machine which could produce the desired tension upon the ring.

In July, 1912, the attorney reported that the patent would be obtained. For some reason or other, the application was delayed, and it was not until October, 1912, that it was made, not for the piston ring and for the machine, but for the ring only.

The patent for the ring was issued on October 7, 1913. As there was, at the time, no possibility of foreseeing the injury to be caused by the failure to apply for the machine patent prior to March, 1913 (in so far at least as future excess profits taxes were concerned), the two partners decided to postpone application for the machine until it was perfect in every detail. Application was finally made on July 11, 1913, and patents were issued on October 13, 1914.

That the two patents were the complement of one another, was more apparent than real, since the ability to construct a machine for the manufacture of a "concentric split ring

having, in a curved surface, a circumferential series of dents all substantially alike, but differing in distance apart," would not have vitiated in any way the monopolistic right of manufacturing the ring. In fact, the future earnings of the patent depended entirely upon the ring itself, irrespective of the machine patent.

In October, 1912, Richardson and Jones started operations in a regular way, having each contributed $3,000 in cash.

At the end of the year 1917, the business was sold for $375,000, one of the partners receiving $200,000, while the other received $175,000. Neither of them reported a gain on the sale. They had assets which they knew to be worth practically what they had sold them for; and as they had never valued the patents for the purpose of capitalization, or for any other purpose, they were ignorant of their value. The true reason for the sale of the business having been incompatibility of character, views, opinions, and policies, the two partners had the impression that they had sacrificed their future, and actually sold at a loss.

In February, 1920, an internal revenue inspector audited the income tax reports rendered by James Richardson. As a result, there was assessed upon Richardson an additional tax of $102,750.63. Further, a fine of $51,332 was imposed. The memorandum forwarded by the internal revenue inspector contained no particular information other than that referring to a profit of $194,379.02 made by Richardson on the sale of his share of the

business. It was, therefore, presumed by Richardson that the patents had been considered by the internal revenue inspector as having been non-existent, or valueless, at March 1, 1913.

The partners had kept the kind of books which can be briefly described as "worthless." After a great deal of trouble, it was ascertained that the true earnings of the concern, from the incipiency of operations to December 31, 1917, had been, exclusive of drawings by the partners:

From October, 1912, to December 31, 1914....	$ 75,836.42
For the year ended December 31, 1915.....	45,968.14
For the year ended December 31, 1916.....	115,701.42
For the year ended December 31, 1917.....	126,296.29
Total.....	$363,802.27

It was also ascertained that, in January, 1920, the company which had acquired the business of the partnership had been able to make the Special Audit Section of the Bureau of Internal Revenue accept a valuation of $176,499.33 as representing the capital invested at January 1, 1917, and an income tax report for the year 1917, showing that the reinvested profits for the year had been $82,696.29.

REQUIRED: The valuation of the patents of the copartnership of Richardson and Jones, for the purpose of causing the assessment and the fine levied and imposed upon Richardson to be revised.

Discussion of Problem No. 14

Value is one of the inherent qualities of patents. They have been held to be satisfactory and legal consideration for the payment of subscriptions to capital stock, the difficulty of determining their value being no obstacle to such transactions. (New Haven Nail Co. vs. Linden Spring Co., 142 Mass. 349.) Further, they have been considered by the United States Bureau of Internal Revenue as taxable under the provision of the Estate Tax (Regulations No. 37, Revised 1919.)

The fact that Richardson and Jones never deemed it advisable to capitalize their patents at the time they began operations was probably due to their knowledge of the old-fashioned theory of good-will and patents. It used to be said that the occasion for raising an account with these values arose only at the time of their sale.

Both good-will and patents have, for time immemorial, been the "bête noire" of accountants. They were supposed to have no place whatever in a decent balance sheet. Authors of all kinds fulminated against them, and authorities excommunicated them.

When, in 1914, I stated that "the gradual expulsion of good-will from respectable books is one of the perplexing puzzles which accounting offers to its students"; when, besides, I suggested that, instead of being written off when capitalized, patents might be allowed to remain on the books at a value increased in the amount of the good-will earned by them, I was

told, privately and publicly, that my sense of values was unorthodox, some even said vicious. And yet, how many concerns would have made a fortune, that is to say, saved a fortune, if they had, prior to 1913, done the very thing which I recommended at a time when excess profits taxes and capital invested were Utopias of a distant and uncertain future?

If Richardson and Jones were not aware of the odium attaching to good-will and patents, they might have been prevented from capitalizing their patents by the very difficulty of the undertaking. Looking over the literature on the subject of patents, they might have consulted "The Investor's Adviser and Manufacturer's Handbook" (R. Haddon, London, 9th Edition 1913). Under the caption "Commercial Valuation of Patents," they would have read (pages 37 and 38):

> "First, it must be recognized that the value of the rights given under the patent, is not necessarily determined by the commercial value of the invention, though the latter must always be the principal factor in the calculation. The estimated commercial value of the invention is the value of the superior efficacy of the invention over the best of its competitors, in each instance of its employment, multiplied by the number of instances of its employment, or likely employment, and by the time during which it is likely to have pre-eminence. It is impossible to calculate beforehand an absolute commercial value for any invention, because though its value over competitors may be stated with exactness, commensurate with sufficiency of calculation, the number of instances of its employment, its rate of output of production and the duration of its use, can only be matters of conjecture, more or less accurate, according to the practical experience of the calculator.
>
> "Value of use is the advantage possessed by the invention over previously existing processes, meth-

ods, machines, etc., in use with the same object. It is capable of exact calculation and expression in terms of value; thus, whether a machine or process, the advantage may be in decrease of initial cost of construction or installation, decrease of working expenses, improved number or quality of vendible or usable product, in any or all of these. The advantage in each case may be expressed as so much monetary saving.

"Having found the commercial value of the invention 'per se,' the next point for consideration is the extent of its probable employment. For this, in every case statistics will be necessary, from which may be learned the volume of trade in or from the similar articles, or methods which the invention is designed to supersede. If the invention is for use in production, an estimate should be made of the number of producers likely to be influenced to abandon the old for the new process, perhaps more or less dependent on the amount of profit in favor of the new invention. If the invention itself is an article for sale, the likely demand on the part of the buyers of the articles which the invention supersedes should be considered.

"Presuming the invention patented, the calculator should take note of the length of the term of the patent, as the term is that during which the patentee retains control of the trade in the invention, and, consequently, the opportunity for profit. Nevertheless, as an established trade will continue to be profitable for some time after the monopoly expires, a slight additional amount may be reckoned for value of establishment.

"The above simply concerns the value of the invention in commerce, and the probable profit that the inventor could make out of it according to the method of working that he may adopt, and this, of course, should be value of the patent rights after deduction of a sum equivalent to the value of the patentee's time occupied in working the invention and interest on the capital employed."

What the adviser of investors and manufacturers advocates, is nothing else than the capitalization of the present worth of future earnings, estimated seventeen years ahead of time.

There is another plan which might have been adopted; but this plan is predicated upon the existence of a royalty agreement between an inventor of an article similar to the one manufactured by Richardson and Jones, and a manufacturer equipped so as to exploit the patent on a royalty basis of so much per unit manufactured. Had there been such a contract, it would only have been necessary for Richardson and Jones to estimate seventeen years of production, instead of seventeen years of earnings.

In either case, the problem is serious, and it would require a particularly valuable reason to induce anyone to undertake to solve it.

Fortunately, in the case of Richardson and Jones, we know the earnings, or at least the reinvested earnings for a series of years. It is true that we ought to add to these earnings, if we but knew the facts, all the drawings of the partners; that we ought to speculate about the possibility of the earnings increasing from year to year on the basis of the goodwill earned by the goods; that, in fact, we should attempt to establish the budget of the unexpired years, to foresee all possibilities pro and con, and to compute the future earnings on that basis.

A study of the use of the patents by the purchaser for the years 1918 and 1919, if allowed; an intelligent consideration of the buyer's purpose, beliefs, hopes, and policies, if he were willing to take us into his confidence; due considera-

tion of the difference between a valuation arrived at by us, on the basis of averages, and the value given to the patents by the buyer if he cared to tell us; all that would greatly help us in our task. But none of these means being available, we shall have to depend upon known factors.

Before speaking of the computation of values, we must say a word or two about the possibility of the Internal Revenue Department having considered the Richardson and Jones patent as worthless at March 1, 1913, merely because it was granted only in October, 1913. It must be said here, that it appears to be sound doctrine that the enjoyment of the patent monopoly begins with the formal application for the grant, subject, of course, to the eventual issue of letters patent.

Reverting to valuation: Regulations No. 37 (referred to in the foregoing) concerning Estate Tax, states that "the basis for valuation of intangible assets of this character (patents) is the present worth of the estimated future earnings of the exclusive right during the rest of its existence. On the other hand, Regulations No. 45 requires that when ascertaining the profit made on the sale of intangible assets, the difference be taken between their fair market value at March 1, 1913 (if then in existence) and the proceeds of the sale.

I submit that the two methods are radically different as to results, and that in reality they should be on the same basis. What the estate law intends to tax is the portion of the value of the patents which has not gone in the corpus, in some

form or another. What the business tax law intends to tax is evidently the portion of the value sold. Therefore, when an operative patent is sold at the end of the fifth year of its existence, the only thing sold is future worth, and not past worth. Five years of earnings having been collected at December 31, 1917, and either reinvested or distributed by Richardson and Jones, how can they sell them in the year 1917? You will tell me that the reinvested earnings are also sold; that is true, but they are sold as reinvested profits under the form of some tangible asset. We are concerned here only with the value of the intangible assets. I still cannot see how the profits made on a patent operated from January 1, 1913, to December 31, 1917, and sold on the latter date, can be the difference between the fair market value of the patents at March 1, 1913, and the proceeds of the sale. The fair market value at March 1, 1913, could only be the present worth, at that date, of the estimated earnings. Why should the purchaser of the patents buy earnings that he, the purchaser, will never receive? Therefore, if the buyer does not buy past earnings, why should the vendor be permitted to consider them as value?

You will, of course, object to my reasoning because it weakens the case of Richardson and Jones. Maybe it does, but our concern is merely to arrive at true profits on sales through a valuation at the time of the sale.

Therefore, it appears to me that the procedure to be followed in our case is:

1. Ascertain the present worth at March 1, 1913, of the estimated net earnings of the patents for the remainder of their life.

2. Deduct from the total present worth so obtained the actual earnings for the period from the incipiency of the patent to the day of its sale.

3. Consider the remainder of the present worth as the value at December 31, 1917, of the patents sold on that date.

As to the computation itself, it should be as follows:

Amount of Earnings	Nature of Earnings	Time to Run	Int. Rate	Present Worth: Value of $1.00	Present Worth: Amount
$37,900.00	½ of $75,800.00	1 year	6%	0.94339623	$35,754.00

As to the method for ascertaining the present worth, all that need be said here is that it is based on an assumed interest rate, 6% being as good as any; that compound interest is the rule; that each individual value of $1 at any period must be the result of the division of the previous number by 1.06 (if the interest rate is 6%).

Solution of Problem No. 14

Establishment of the value of the patents of the co-partnership of Richardson and Jones, on the basis of the present worth of their estimated earnings:

Amount	Nature	Time to Run	Int. Rate	Present Worth Value of $1.00	Present Worth Amount
$ 37,900.00	1/2 of $75,800.00	1 year	6%	0.94339623	$ 35,754.00
37,900.00	1/2 " 75,800.00	2 years	"	0.88999644	33,730.00
46,000.00	Actual	3 "	"	0.83961928	38,622.00
115,700.00	"	4 "	"	0.79209366	91,645.00
126,300.00	"	5 "	"	0.74725817	94,379.00
72,767.00	Average	6 "	"	0.70496054	51,298.00
72,767.00	"	7 "	"	0.66505711	48,394.00
72,767.00	"	8 "	"	0.62741237	45,655.00
72,767.00	"	9 "	"	0.59189846	43,071.00
72,767.00	"	10 "	"	0.55839478	40,633.00
72,767.00	"	11 "	"	0.52678753	38,333.00
72,767.00	"	12 "	"	0.49696936	36,163.00
72,767.00	"	13 "	"	0.46883902	34,116.00
72,767.00	"	14 "	"	0.44230096	32,184.00
72,767.00	"	15 "	"	0.41726506	30,363.00
72,767.00	"	16 "	"	0.39364628	28,644.00
72,767.00	"	17 "	"	0.37136442	27,023.00
$1,237,004.00					$750,007.00

Therefore, value of patents at December 31, 1917:

Present Worth at March 1, 1913.....	$750,007.00
Deduct:	
Actual Earnings of the operating periods from October 1, 1912, to December 31, 1917.....	363,802.27
Value of Patents at December 31, 1917.....	$386,204.73

Note: The present worth of one dollar at its different periods is taken from "THE ACCOUNTANCY OF INVESTMENT" by Sprague and Perrine, Ronald Press, 1918, page 342.

P R O B L E M N O. 15

METHODS OF DEPRECIATION

PROBLEM NO. 15

METHODS OF DEPRECIATION

Text of the Problem

A company placed in service, on January 1, 1918, a piece of machinery costing $84,000; the residual value of the machine, at the end of its life, would be $1,500. The life of the machinery is eight years.

The board of directors, before deciding upon a method of depreciation, require a statement which will show the results obtained under the following methods:

1. Straight Line
2. Sinking Fund at 4% interest
3. Annuity at 4% interest

The directors expect that the accountant will supplement his statement by giving the advantages and disadvantages of each method, and, if he deems it advisable, instruct the board as to other possible methods of depreciation.

Discussion of Problem No. 15

The object of ascertaining the extent of the depreciation suffered by the physical units of the plant, is to make it possible to include the loss of invested values in the cost of operations, and, therefore, to recover that cost through the sale price. Obviously, depreciation is of vital importance to the administrator, to the manager, to the operator, to the economist, to the banker, and to the accountant.

What, then, is depreciation?

It has been defined as follows: wastage of serviceable life; wear and tear of physical units; loss of efficient life; the extent of the periodical progress of physical units towards the scrap heap.

In fact, depreciation is the irreparable injury suffered by physical units through use of energy in the fulfillment of their functions limited by the extent of their life; it is something akin to what the French poet, speaking of the effect of life and time upon human beings, described as "the irreparable outrage of time."

A piece of machinery is an articulate body acting under the influence of power generated by itself or transmitted to it, and performing functions which fatally consume its vitality in direct ratio to the frequency of its use. What is expected of the machine, is naturally confined within the limits of its well-known efficiency; the maintenance of that efficiency

is based upon a certain minimum of periodical repairs, with a maximum beyond which it cannot go without admitting its inefficiency, and therefore its uselessness.

It may happen that the work to be performed by a particular piece of machinery is at the same time so strenuous and so delicate, that the parts which do the valuable work have to be replaced within a very short period; the process is known as maintenance replacements, and is as necessary as it is efficient. It may also happen that, in a machine where six similar parts produce the motion necessary to give to the finished product a certain quality, a certain finish, a certain weight per linear foot or per thousand linear feet, the failure of one of the parts compels the replacement of the six parts, because while only one is badly worn, the others are worn enough to prevent them from harmonizing in motion with that of a new part. It may even come to pass that, after a thorough overhauling, a locomotive of an efficient type, rating at 60% efficient before going to the shop for a thorough overhauling, comes out of it with an efficiency rating pretty close to 100%.

But the great question will always be: granted that lavish repairs and replacements maintain efficient life, is there not a time when, owing to the disintegration of its molecules, a mechanical entity becomes incapable of a further valuable effort? Does not the fact that a new part is attached to an older part cause a motion, a vibration, an oscillation which, imperceptible as it may be, shatters the organism as a

whole, and hastens its final breakdown? Is it not also true that repairs, no matter how trivial, should be attended to when needed, and not postponed until some more opportune time, lest the effect of a temporarily inefficient part be to inflict upon a more vital part an injury all the more serious because it can be neither perceived nor repaired? When does all this occur, and to what extent, in any particular period of the life of the machine?

To a great many people, depreciation is nothing more than a species of unavoidable loss, of a value undeterminable, and not worthy of the time and effort that it takes to ascertain its extent in a scientific way; they are satisfied with a general estimate applying to heterogeneous units, untrue at every analytical point, but supposed to be, in the aggregate, as true as estimates can ever make a proposition. They may or they may not charge depreciation to cost; they believe that the only thing that is of importance is to create a reserve account to receive the periodical credits, and to accumulate them until such time as, the reserve equaling the asset, the truth or the fallacy will be known. If, at this point, the reserve is too great because the physical units depreciated in full are still in existence and in useful service, then the excess reserve will be sent back to the surplus from which it comes, and new estimates will be resorted to. Nothing could be simpler! As to the fact that such an interference with the surplus constitutes a denial of the truth of all the previous cost figures, and an

accusation of carelessness, incompetency, and misrepresentation, nobody is particularly worried by it, because it is one of the idiosyncrasies of fallacies that they fool first of all, those who brought them into the world.

It is an axiom of serious accounting, that no recording of transactions which does not reflect the exact truth is worth its cost. Therefore, if depreciation is going to be used merely to take advantage of an item of cost allowable as a deduction from taxable income, or because custom has sanctified its inclusion in respectable cost accounts, or again, because it is a nuisance that must be reckoned with, it might as well be denied right of entry once for all.

But there are engineers, accountants, and economists who have given to depreciation all the study that such a complex subject requires and deserves. They have theorized about it to their hearts' content, and, bounded only by their individual power of reaching the truth, they have brought forth and advocated methods of depreciating physical units which are as numerous and as radically different in form and in results as the human mind can conceive. No matter how they may differ, they all have the same objective, viz., the search for the actuality of the mortality of physical units.

To illustrate the foregoing, it may be well to mention, at random, a few of the methods of depreciation which have been in use at sometime or another, are in use today, or are forcing themselves upon the attention of the modern business man, that

is to say, as I know him at least, a pretty well educated man, even though, and perhaps because, his education was had in the factory or in the office:

The Straight Line Method
The Sinking Fund Method
The Annuity Method
The Revaluation Method
The Unit Cost Method
The Actuarial Method
The Reducing Balance Method

There are a great many other methods evolved in particular plants, to meet the peculiar or particular conditions of the plant, climate, machinery, working force, and usage. But it is not intended to exhaust, here, the subject of depreciation; others have done it in a masterly fashion both in this country and abroad. My only desire is to call your attention emphatically to one of the most complex problems which we accountants face daily, whether we know it or not.

THE STRAIGHT LINE METHOD

The straight line method is very simple; it is based on the proposition that, if the amount to be depreciated is divided by the number of years of useful life, the result will be the annual sum which must be considered as depreciation cost. The disadvantage of the procedure is that it cannot result in accuracy, since it cannot be true that a machine will depreciate in precisely the same manner and to the same extent, during the several periods of its useful life, no matter what the conditions may be. There is no theory at the base of

this method, other than that of the equalization of charges for the purpose of uniformity and simplicity.

Admittedly, the straight line method may be harmless, and in a quantity of instances adequate enough; it may even be the obvious method to be adopted in some cases where the sale price is established once for all on data sufficiently elastic to make it certain that all the elements of cost are more than recovered. Still, the method is unscientific, and therefore has no ideal to pursue, and no information to give. It can contribute nothing of value to the fund of basic data out of which should be evolved the administrative as well as the operating and commercial policies of the concern.

THE SINKING FUND METHOD

This method is based upon the economic proposition that all wasting assets must be provided for out of the earnings to which they contribute, in such a manner that, at the expiration of their useful life, there will be on hand a specific fund for the acquisition of equivalent units.

The fact that, in principle, the loss sustained in wasting assets has been charged to cost, and therefore recovered through the sale price of the goods produced, or through charges for services rendered, does not satisfy the ethical sense of the advocates of the specific fund. They maintain that the recovered value of the scrapped unit has become part of some asset which in its present state is far too useful to the concern to be sacrificed for the purpose of acquiring another asset.

They have little sympathy with the claim that it is not a question of sacrifice, but merely one of exercising the borrowing power of the new assets, since they believe that as much as possible a concern should finance itself, and not form the habit of borrowing on the slightest provocation.

Of course, there is a great deal of real constructive value in the criticism of the economists, but they themselves are not free from censure in their advocacy of the sinking fund. All they are interested in is to find what sum of money, invested periodically at compound interest at a given rate, during the life of the asset, will amount to the sum necessary to acquire the new asset. They ignore entirely the possibility of fluctuations of prices, and offer no suggestion as to how the fund should be treated to provide for a case where a machine purchased for $5,000 in 1900, and scrapped in 1920, would cost $10,000 in the latter year. What is at least equally as important, they do not appear to be troubled by the fact that their method amounts to no more than the funding of a loss ascertained in practically the same manner as under the straight line method.

If the term "straight line" suggests that the graphic line descriptive of physical losses of invested property will remain perfectly straight instead of curving up or down according to actuality, then the straight line method admits on its face that it is dealing with "estimated depreciation" instead of with "realized depreciation." Therefore, the sinking fund method, the graph line of which will also be straight, admits

the same procedure. The question at issue remains: Should the cost of goods contain estimates or actualities? It cannot be denied that actuality is the desideratum, and that any method which does not produce the exact truth is fallacious, at least in quite a few branches of human endeavor.

THE ANNUITY METHOD

The annuity method is described by Dicksee as follows: "Write off to revenue each year an equal sum, sufficient at the expiration of the life of the asset, to reduce the asset to zero (or its residual value) after debiting the asset and crediting revenue each year, with interest, at an agreed rate, upon the amount for the time being sunk in the asset in question."

The method, as you will notice, is nothing more than the sinking fund method, with the introduction of an independent factor, the element of interest on the investment. The amount of the annuity of $1 for the life period of the machine is ascertained, and divided into the amount to be provided for. The resulting sum, invested periodically at compound interest at the selected rate, will produce the required sinking fund; at this point, the interest element enters the field. At the end of every accounting period, the asset account is debited with interest on the balance invested at the beginning of the year, the credit going to an income account with interest. Then the same amount is charged to depreciation (precisely like the sinking fund amount), the credit going to the asset account, or to a credit account with accumulated depreciation, which

latter account has for its object to act as a separate credit to the asset account, until both the asset and the accumulation of credits are equal.

What the method has in view is not at all obvious. It may be that the theory on which it operates is as follows: Since capital is sunk into a machine instead of being invested in income-producing securities, the manufacturer deprives himself of the benefit that he could obtain from financial investments if he were not a manufacturer; therefore, he must add that loss of interest to the cost of the goods; and, since the loss of interest is caused by the machine, the loss should be recovered through the machine itself; this cannot be done without increasing the element of depreciation.

If this is the theory, then it has very little in its favor. First of all, the inclusion of interest on the investment as cost of operation is challengeable on all sides. It presupposes that all the physical units were acquired out of cash possessed at the incipiency of the enterprise. If these premises are not correct, then the manufacturer, not having sufficient capital to invest in securities, cannot be said to lose anything whatsoever if he elects to be a manufacturer instead of an investor: further, if a manufacturer has not enough capital to acquire his equipment, then he must borrow; if he borrows, he pays interest, and if he pays interest he recovers its cost through the sale price. If he attempts, besides, to recover a sentimental and fallacious loss, he is duplicating his interest

charges to cost; he resorts, in fact, to an argument similar to that of the youth who having lost ten dollars said:

Ten dollars that I had.....	$10.00
Ten dollars that I have lost.....	10.00
Ten dollars that I must find to replace the loss.....	10.00
Total of my lose.....	$30.00

THE REVALUATION METHOD

The revaluation method is based on the theory that the only basis on which "realized depreciation" can be accurately ascertained, is to discard all estimates and suppositions, and to base judgment on a retrospective survey of what has happened. This means that, if after a period of activity, mechanical engineers or other plant experts go very carefully over the physical units of the plant and attempt to establish their present service value, the difference between the initial and the closing values will give the extent of the depreciation sustained.

Naturally, this method; while excellent in principle, might cause a great deal of trouble in some modern plants; the very task of carrying it out might properly make it objectionable, and lead to the substitution of occasional estimates, gradually opening the door to a procedure said to be vicious. Still, the revaluation method has an excellent foundation, and has been used as a basis for the development of a plan which bids fair to be adopted by enterprises whose equipment is considerable, both as to units and value, and troublesome owing to the wide differences in the life, usefulness, service and fragility of the units.

THE ACTUARIAL METHOD

This method appears to have been developed by an engineer, Mr. E. J. Kates, who published an excellent description of it in "Railway Age," Volume 64, pages 1133-1135, May 3, 1918, under the heading "The Actuary Theory of Depreciation of Physical Property Values." The article is copyrighted by Mr. Kates.

Having stated his objection to sundry methods of depreciation, Mr. Kates explains how he has developed mortality and expectancy tables from his knowledge of conditions existing in the railroads west of Chicago. His tables are worked out by classes of equipment, and establish the years of service, the per cent of units remaining in service, the expectancy in years of additional service, the expectancy in per cent of remaining service, the expectancy in per cent of remaining value. The exact conditions surrounding all equipment, that is to say, their idle periods, their liability to destruction by fire, wrecks, dismantling, or conversion into work-service equipment, etc., enter into the computation of the tables, precisely as life conditions enter into consideration for the establishment of mortality and experience tables of insurance companies. From these tables it is possible to obtain the value of all classes of equipment at the end of any period, as to future life, expectancy of service, and therefore, by comparison with the values of the prior period, the amount of loss sustained through service.

Besides the methods described in the foregoing, there are various others, all of which have had for their object to arrive at a workable basis for the recording of losses resulting from irreparable wear and tear.

The question of depreciation has so worried the people interested in it, that some have not been satisfied until they have been able to blend, and treat as one, the two factors which cause the cessation of the usefulness of physical units, that is to say, depreciation proper and obsolescence.

Obsolescence, applied to units of a plant, appears to be:

1. The possibility of a unit being developed for the production of certain goods, which would be so far above the one at present in use, as to make the abandonment of the present one imperative.

2. The certainty, based on experience, that in a certain line of industry, a particular process of manufacture changes radically, say every eight years, compelling the abandonment of machinery which would otherwise have a life of, say, fifteen years.

3. The state of uselessness to which units are reduced by the very achievement of the objective of a concern which, starting on an unpretentious and decidedly conservative plan, is compelled by success to change its policies and join the leaders, instead of following way behind them.

4. The failure of goods, purchased for sale, to make upon the buying public the impression which they were expected to make, and, therefore, their speedy classification as "out of style," or obsolescent.

5. The loss of utilizable value of goods manufactured in large quantities for a market which has suddenly passed out of existence, owing to the

> effect of inventions, in other lines, of such a revolutionary character as to radically change methods of living, travelling, dressing, etc. etc., ad libitum.

If obsolescence of physical units is only a possibility, a fear, an impalpable threat of the future, it should not be amalgamated with depreciation; if its certainty is indicated by past experience, but with nothing pointing to the positiveness of its recurrence in the future, the blend should be dispensed with, and the possible loss provided for otherwise; obsolescence of merchandise must be reckoned with in the period in which it materializes, either by a direct charge to profit and loss, or by such a reduction of the inventory as will automatically add the loss to the cost of the goods sold. The loss of a market for our goods must be similarly treated.

If a concern whose operation consists in removing by hand the inner coarse skin covering.cocoanuts, develops a machine so efficient as to reduce considerably the loss of meat which is a consequence of the hand operation; if the operating machine saves, besides, factory space and factory wages, the concern has become the patentor of a unit which will place its inventor in a tremendously advantageous position. Competitors will naturally be so hard pressed as to realize that it means industrial death unless they can produce a machine equally efficient without, however, infringing upon the original patent. Now the life of the new machine being, say, ten years, true depreciation must be provided for through the sale price of the nut made ready for use in the industries using this commodity.

But if there is a possibility of a better machine being invented within six years, will not the inclusion of obsolescence as a cost of operations deal with an uncertainty which may, in fact, destroy, through excessive sentimental cost, the value of the advantage now possessed by the inventor? In the event that the machine is leased by the inventor to factories now operating by hand, is there not a possibility that the desire on his part to recover, through royalties, all cost including obsolescence, may lead some manufacturers to the conclusion that the royalties are high enough to at least offset the undeniable advantages of the machine from the point of view of savings?

As a second illustration, assume that the process of making the filaments for electric bulbs was radically changed three times in fifteen years, going from paper filtered hydraulically through a metallic cylinder, to tungsten forced through perforated diamonds, and lastly to tungsten pulled into the desired size, elasticity, and resisting power. The machinery producing the first filament had to be discarded after eight years of life, out of a possible fifteen; the machinery producing the second filament was discarded after seven years of life, out of a possible eighteen; no change occurred for ten consecutive years in the third, or pulling process, and, the World War having come and gone, the process still remains the same, and the machinery is still doing its useful work. Where, under the conditions named, would lie the value of the cost data obtained in the cost-finding for the third process if the

obsolescence of the machinery had been charged to cost according to expectancy based on past performances?

I do not wish to be understood as saying that I do not believe that obsolescence is not recoverable through the sale price, in some form or another, for I do earnestly believe that no sane business man, having ascertained the cost of his wares, fails to add thereto an element of possible losses to recur from year to year and at present not susceptible of being estimated. The point that I wish to make is that every business man, every manufacturer, every operator, is facing a certain quantity of business risks. If all risks are eliminated by being computed at their worst, and recovered through the price of the goods sold; if we keep on adding to our cost all the actual cost, all the problematic cost, all the prophetic cost, all the sentimental cost, and all the "if cost," to say nothing of all taxes, franchise and privilege fees, etc. etc., the day will come when we will be forced to go back to private life owing to the lack of buyers. I believe that we are experiencing a little of that at the present time.

Enough has been said about the nature of depreciation to at least impress upon the student the importance of the subject matter of this discussion, and give him a desire to go more deeply into the study of that fascinating problem. I should like, however, to add a few words relative to the treatment of depreciation on the financial books of account.

Remember that any depreciation the amount of which has been obtained in a scientific manner is a positive element of cost of goods; therefore it should be considered as transferred, together with other elements (such as materials, labor, etc.) to the new asset which is to be sold; correspondingly it should, in principle, be deducted from the asset which has lost its value. If the actual credit to the asset is not deemed advisable, the credit account receiving the item should not be called "Reserve," but "Accumulated Depreciation Charged to Cost." This credit account cannot be treated in the balance sheet as reserved surplus; nor can it be given a place on the liability side among the liabilities; if it is not deducted from the asset on the balance sheet proper, it can only be called "Accumulated Depreciation" under a caption similar to the one suggested by the Interstate Commerce Commission, "Unliquidated Credits."

If, on the other hand, depreciation is an estimate pure and simple, it should not be charged to the cost of the goods. It should, then, be appropriated out of operating profits, and in the balance sheet treated as "Surplus Appropriated for Estimated Depreciations." Under no conditions can this appropriated surplus be deducted from the asset account to which it applies.

Solution of Problem No. 15

Table showing annual depreciation elements on the basis of:

THE STRAIGHT LINE METHOD

Age in Years	Value at End of Year	Depreciation
0	$84,000.00	$
1	73,687.50	10,312.50
2	63,375.00	10,312.50
3	53,062.50	10,312.50
4	42,750.00	10,312.50
5	32,437.50	10,312.50
6	22,125.00	10,312.50
7	11,812.50	10,312.50
8	1,500.00	10,312.50
Scrap Value	1,500.00	
Total.....		$82,500.00

Table showing annual depreciation elements on the basis of:

THE SINKING FUND METHOD

Age in Years	Value at End of Year	Annual Payment to Sinking Fund	Annual Accretion of Interest to Sinking Fund	Actual Annual Cost, or Payment, plus Year's Interest Accumulations
0	$84,000.00	$	$	$
1	75,046.45	8,953.55		8,953.55
2	65,734.76	8,953.55	358.14	9,311.69
3	56,050.61	8,953.55	730.60	9,684.15
4	45,979.09	8,953.55	1,117.97	10,071.52
5	35,504.71	8,953.55	1,520.83	10,474.38
6	24,611.35	8,953.55	1,939.81	10,893.36
7	13,282.26	8,953.55	2,375.54	11,329.09
8	1,500.00	8,953.55	2,828.71	11,782.26
Scrap Value	1,500.00			
Total.....		$71,628.40	$10,871.60	$82,500.00

Table showing the annual depreciation elements on the basis of:

THE ANNUITY METHOD

Age in Years	Value at End of Year	Interest on Remaining Value of Property at 4%	Combined Depreciation Allowance	Depreciation plus Interest on Investment
0	$84,000.00	$	$	$
1	75,046.45	3,360.00	8,953.55	12,313.55
2	65,734.76	3,001.86	9,311.69	12,313.55
3	56,050.61	2,629.40	9,684.15	12,313.55
4	45,979.09	2,242.03	10,071.52	12,313.55
5	35,504.71	1,839.17	10,474.38	12,313.55
6	24,611.35	1,420.19	10,893.36	12,313.55
7	13,282.26	984.46	11,329.09	12,313.55
8	1,500.00	531.29	11,782.26	12,313.55
Scrap Value	1,500.00			
Total.....		$16,008.40	$82,500.00	$98,508.40

Note: The other requirements of the problem have been satisfied by the discussion which precedes this problem.

P R O B L E M N O. 16

REDEMPTION OF DEBT THROUGH THE CREATION OF A SINKING FUND

PROBLEM NO. 16

REDEMPTION OF DEBT THROUGH THE CREATION OF A SINKING FUND

Text of the Problem

A company proposes to issue, in July 1921, $500,000 5% bonds, to mature July 1, 1931, interest payable January 1 and July 1. The bonds are to be retired by means of a sinking fund provided out of profits at the end of each semiannual accounting period, but the payments are to be made on the first day of the next period.

The following hypothetical cases have been submitted to the board of directors by the company's accountant, whose opinion was sought in regard to different methods of creating the required fund:

Hypothetical case No. 1. The sinking fund is to be composed of a series of payments, recurring at the end of each semiannual period, each representing 1/20th of the sum to be retired, less the interest earned by the fund, at the rate of 4% per annum, compounded semiannually.

Hypothetical case No. 2. The sinking fund is to be established as suggested in the first hypothetical case, but from time to time the funds are to be used to acquire bonds of other companies, the income from which should be not less than 5% per annum.

Hypothetical case No. 3. The sinking fund is to be established on the basis of such a sum of money as, invested periodically at no less than 4% per annum compounded semiannually, will produce the amount to be retired at maturity.

Supplying your own figures to fit the various hypotheses, prepare and submit:

(a) Tables showing how each hypothesis would work out.

(b) Comments upon the value of the sundry methods.

Discussion of Problem No. 16

Debts contracted for the purpose of financing a policy of expansion must, in principle, be repaid out of the greater income which such expansion secures. Therefore, in theory, it should be sufficient to set aside periodically out of profits, such a sum as would equal the debt within the limit of life of that debt. This would compel the portion of profits needed for refunding to stay in the business, free from the danger of being distributed to the stockholders in the line of dividends.

The method of providing for the redemption of debts out of profits by merely appropriating a certain portion of the net income, is sound in theory; it has the further advantage of allowing the appropriated profits to remain invested in the business, where they will earn as great a return as the general line of funds invested for the fulfillment of the purpose of the concern. Unfortunately, the method is open to the criticism that it is based on the assumption that the present prosperity of the concern issuing the bonds will remain unaffected by possible adverse future events and conditions; it leaves, in the financial structure about to be erected, an element of doubt, a flaw which the investors are very likely to consider seriously before parting with their money; it does not, necessarily, jeopardize the security of the investment, but it raises the ghost of a compromise through reorganization, instead of presenting the more attractive outline of positive refunding at maturity.

Therefore, it becomes more and more advisable, as business progresses in its career, to fund reserves for the redemption of debts. Further, the sinking fund is not left in the hands of the concern which has undertaken its creation, but it is paid out periodically to a trustee who administers it; and this appears to be eminently satisfactory to the investor.

There are several methods of creating a sinking fund for the redemption of a debt, and whatever the method may be, they all apply the economic principle that the funds so set aside must be made to earn their interest at as high a rate as can be obtained. Therefore, if the investment market offers securities purchasable at such a price as to yield a greater income than is possible to funds deposited in a bank, it is very probable that bonds of other companies will be acquired by the trustee out of the funds placed in his hands. This is possible under hypothesis No. 2 raised by the problem, but not under hypotheses Nos. 1 and 3.

By far the simplest method of creating and accumulating a sinking fund for the redemption of a debt, is to divide the amount to be refunded by the number of interest periods contained in the life of the debt, and, at every interest period, to deposit the resulting sum less the amount earned by the fund, so far, in the form of interest at a certain rate, compounded semiannually.

The solution of this problem presents, under the caption "Hypothesis No. 1," the results of the method described above. The semiannual payments to a fund, started in January 1922, for the redemption of a debt of $500,000 maturing on July 1, 1931,

would total $405,000; this sum would be made to equal the debt to be retired, by means of earnings of $95,000 resulting from the periodical investment of the funds at 2% semiannually, compounded.

There is nothing wrong with the method, except that it fails to meet the criticism made by the opponents of sinking funds, that they are unduly harsh to business enterprises by reducing considerably the earning power of money.

This objection is met, in part, by hypothesis No. 2. This method attempts to increase the earning power of the sinking fund, by investing money at a higher rate through the medium of purchases of securities. The results of the method, as exhibited in the attached solution under the caption "Hypothesis No. 2," parts (a) and (b), are quite different from the results of the first method.

(1) Regular payments into the fund.....			$401,428.92
(2) Interest purchased:			
Paid out.....	$ 150.00		
Refunded.....	150.00		--- --
(3) Premiums paid out of fund:			
On securities sold.....	$ 513.00		
On securities held to maturity.....	1,587.00		
Total.....	$ 2,100.00		
Premiums recovered through sale price		129.00	
Balance paid out.....		$ 1,971.00	
Premiums refunded to fund.....		1,971.00	--- --

(4)	Par of securities paid out.....	$50,000.00	
	Par of securities recovered.....	50,000.00	
(5)	Interest on fund.....	$86,321.08	
	Interest on securities.....	12,250.00	
	Total interest.....		98,571.08
	Total fund.....		$500,000.00

Therefore, through the application of a financial policy in the administration of the fund, a sum of $3,571.08 has been salvaged out of the loss which the opponents of sinking funds claim to have been suffered by the company, through the very creation of the fund, and said to represent the difference between the percentage of the company's usual rate of income on its invested capital, and the rate earned by the sinking fund.

While the results of the second method are satisfactory from the point of view of its general theory, they are not as scientific as they might be. It is obvious that, by allowing the premium paid on securities to remain as part of the investment until the bonds are either sold or redeemed at maturity, the loss of the premium is made to fall in one period. This disturbs materially the status of the regular cash instalment, and, besides, treats as interest income an element of cost of the investment which, speaking from the point of view of principles of finance, is not income in any sense of the word. Therefore, if we were to be accurate to the last degree in the handling of sinking funds, we ought to amortize to par the premiums paid on investments, and accumulate to par the discounts received.

To illustrate what I have in mind, I submit a table showing what true interest would be on the X bonds, purchased on January 1, 1923, and sold on September 1, 1927. This schedule shows how the eventual loss of $384 which under hypothesis No. 2 must be refunded by the company to the trustee, when it occurs, is absorbed periodically under the tenets of the theory of amortization.

COST OF X BONDS

On the basis of Amortization of Premiums

		Cost	Amortization of Cost to Par	Balance	Sale Price	Loss on Sale	Profit on Sale
1923	Jan. 1	$10,513.00	$-- --	$ --- --			
"	July 1		37.17	10,475.83			
1924	Jan. 1		38.11	10,437.72			
"	July 1		39.06	10,398.66			
1925	Jan. 1		40.04	10,358.62			
"	July 1		41.04	10,317.58			
1926	Jan. 1		42.07	10,275.51			
"	July 1		43.12	10,232.39			
1927	Jan. 1		44.19	10,188.20			
"	July 1		45.30	10,142.90			
1927	Sep. 1		1/3 13.90	10,129.00	$10,129.00	---	---

INCOME ON X BONDS

On the basis of Amortization of Premiums

Amortization Dr.	Nominal 6% on Par Cr.	Effective 5% on Cost Bal.
$-- --	$ --- --	$ --- --
37.17	300.00	262.83
38.11	300.00	261.89
39.06	300.00	260.94
40.04	300.00	259.96
41.04	300.00	258.96
42.07	300.00	257.93
43.12	300.00	256.88
44.19	300.00	255.81
45.30	300.00	254.70
13.90	100.00	86.10
$384.00	$2,800.00	$2,416.00

A third method of creating a sinking fund for the redemption of a debt is to find such a sum of money as, invested at every interest period at a given rate of interest, compounded, will produce the required sum at the end of the life of the investment.

The method is simplicity itself, and it works very well, in that the sinking fund instalment is always the same (see solution, hypothesis No. 3). It has, however, one objection: unless the annuity is figured at a high rate of interest, and the fund can be invested at such a rate (which is doubtful), it is a very costly proposition; at least from the point of view of those who believe that all sinking funds amount to malpractice of accountancy.

You may have received, from the foregoing, the impression that a sinking fund created for the redemption of a debt is perfectly capable of fulfilling its purpose irrespective of the creation of a reserve out of profits. This is quite true; if we speak of results only, it is not at all necessary to have a reserve coexisting with, and at all times equivalent to, the fund. Still, the theory of the fund is so closely connected with the setting aside of profits that it is not easy to see how one should exist without the other. If the sinking fund is supposed to represent profits accumulated in liquid form and dedicated to a certain purpose, there should be in the surplus a subdivision capable of showing positively the same amount of profits separated from the free surplus, and asserting that the debt to be re-

tired is being provided for out of income. Of course, when the fund has equaled the debt, the latter is liquidated, the fund is spent, and the reserve still remains to be disposed of; and there is nothing to do but to return the reserve to the surplus from which it came. It cannot be objected to that such a treatment exposes the reserve to be declared as dividends, because the directors have a perfect right to do such a thing. The repayment of a debt through profits has not made the profits disappear; the profits have, in fact, been made to acquire the assets by removing the lien attaching to them. Still, as it is supposed that the great question of conservatism will ever be raised in accounting matters, it may be said, for the benefit of those who object to the reserve being made to lose its identity, that all that is necessary is to leave it as it stands, after its name has been slightly changed. Instead of calling the account "Reserve for the Redemption of Debts," they may call it "Surplus Used to Acquire Assets," or "Surplus Used to Repay Liens Against Assets"; or they may give it any other name that will satisfy their sense of propriety. When all is said and done, the reserve, having accomplished its mission, is free surplus, and can be distributed as such, without violation of a single principle of finance or economics, or law, or business practice.

So far as the balance sheet is concerned, the question is: What kind of an asset is the sinking fund for the redemption of a debt? It is undoubtedly not an operating asset, since the debt for the redemption of which it is created is, in no sense of the word, an operating liability. It is in fact a capital asset

opposed to the capital liability which it will eventually retire. There would be some sense in deducting the asset from the liability in the short column of the balance sheet, and extending the balance of the liability as portion of the liability not as yet provided for; but there would be no sense in treating the sinking fund as a current asset.

If the fund is made up of cash, securities of other companies, and bonds of the company presenting the balance sheet, the latter securities can be deducted from the amount of bonds representing the liability to be retired, upon the ground that the amount held is, to all intent and purpose, practically redeemed.

Still, if we do this for bonds of a company held in its own sinking fund, there is really very little reason why we should not deduct from the liabilities all the assets held as pledges by the creditor. This would eventually make our balance sheet a statement of equities: we know that such is not the purpose of the balance sheet.

Solution of Problem No. 16

Hypothesis No. 1

STATEMENT SHOWING THE COMPOSITION OF THE SINKING FUND AT ITS SUNDRY PERIODS

Periods		Semiannual Instalment Paid into Sinking Fund	Interest on the Sinking Fund at 2% Semiannually, at end of each period	Amount of Sinking Fund at beginning of each semi-annual period
1922	Jan. 1	$ 25,000.00	$ --- --	$ 25,000.00
"	July 1	24,500.00	500.00	50,000.00
1923	Jan. 1	24,000.00	1,000.00	75,000.00
"	July 1	23,500.00	1,500.00	100,000.00
1924	Jan. 1	23,000.00	2,000.00	125,000.00
"	July 1	22,500.00	2,500.00	150,000.00
1925	Jan. 1	22,000.00	3,000.00	175,000.00
"	July 1	21,500.00	3,500.00	200,000.00
1926	Jan. 1	21,000.00	4,000.00	225,000.00
"	July 1	20,500.00	4,500.00	250,000.00
1927	Jan. 1	20,000.00	5,000.00	275,000.00
"	July 1	19,500.00	5,500.00	300,000.00
1928	Jan. 1	19,000.00	6,000.00	325,000.00
"	July 1	18,500.00	6,500.00	350,000.00
1929	Jan. 1	18,000.00	7,000.00	375,000.00
"	July 1	17,500.00	7,500.00	400,000.00
1930	Jan. 1	17,000.00	8,000.00	425,000.00
"	July 1	16,500.00	8,500.00	450,000.00
1931	Jan. 1	16,000.00	9.000.00	475,000.00
"	July 1	15,500.00	9,500.00	500,000.00
		$405,000.00	$95,000.00	

Hypothesis No. 2

(A) STATEMENT SHOWING THE COMPOSITION OF THE SINKING FUND - CASH

Assumed Transactions in Bonds of Other Companies:

Jan. 1, 1923 Purchased 10 X Bonds, 6% Jan. and July 1 - due Jan. 1929 at 105.13
July 1, 1924 " 25 Y " 6% " " " 1 - " " 1930 " 105.49
Sep. 1, 1926 " 15 E " 6% " " " 1 - " " 1928 " 101.43 and accrued interest
" 1, 1927 Sold 10 X " 6% " " " 1 - " " 1929 " 101.29 " " "

DEBITS									CREDITS				BALANCE	
Date	Regular Cash Instalments	Refunds of Interest Purchased	Payment to Fund for Losses of Prem. at Sale or at Mat.	Proceeds of Sale of Securities	Cancelation of Securities at Mat.	Interest on Securities	Interest on Fund	Total Debits	Date	Purchases of Securities	Purchases of Interest	Total Credits	Date	Amount
1922 Jan. 1	$ 25,000.00	$	$	$	$	$	$	$ 25,000.00		$	$	$	1922 Jan. 1	$ 25,000.00
" July 1	24,500.00						500.00	25,000.00					" July 1	50,000.00
1923 Jan. 1	24,000.00						1,000.00	25,000.00	1923 Jan. 1	10,513.00		10,513.00	1923 Jan. 1	64,487.00
" July 1	23,410.26					300.00	1,289.74	25,000.00						89,487.00
1924 Jan. 1	22,910.26					300.00	1,789.74	25,000.00						114,487.00
" July 1	22,410.26					300.00	2,289.74	25,000.00	1924 July 1	26,372.50		26,372.50		113,114.50
1925 Jan. 1	21,687.71					1,050.00	2,262.29	25,000.00						138,114.50
" July 1	21,187.71					1,050.00	2,762.29	25,000.00						163,114.50
1926 Jan. 1	20,687.71					1,050.00	3,262.29	25,000.00						188,114.50
" July 1	20,187.71					1,050.00	3,762.29	25,000.00						213,114.50
									1926 Sep. 1	15,214.50	150.00	15,364.50		197,750.00
1927 Jan. 1		150.00						150.00						
" Jan. 1	19,695.00					1,350.00	3,955.00	25,000.00						222,900.00
" July 1	19,042.00					1,500.00	4,458.00	25,000.00						247,900.00
" Sep. 1			384.00	10,129.00		(1)100.00		10,613.00						258,513.00
1928 Jan. 1	(2)18,600.50					1,200.00	5,099.50	(3)24,900.00						283,413.00
" Jan. 1			214.50		15,000.00			15,214.50						298,627.50
" July 1	18,277.45					750.00	5,972.55	25,000.00						323,627.50
1929 Jan. 1	17,777.45					750.00	6,472.55	25,000.00						348,627.50
" July 1	17,277.45					750.00	6,972.55	25,000.00						373,627.50
1930 Jan. 1	16,777.45					750.00	7,472.55	25,000.00						
" Jan. 1			1,372.50		25,000.00			26,372.50						425,000.00
" July 1	16,500.00						8,500.00	25,000.00						450,000.00
1931 Jan. 1	16,000.00						9,000.00	25,000.00						475,000.00
" July 1	15,500.00						9,500.00	25,000.00						500,000.00
	$401,428.92	$150.00	$1,971.00	$10,129.00	$40,000.00	$12,250.00	$86,321.08	$552,250.00		$52,100.00	$150.00	$52,250.00		$500,000.00

(1) Interest sold with securities.
(2) Fund less interest sold already collected.
(3) Regular instalment less $100 for interest already collected.

Hypothesis No. 2 - Continued

(B) STATEMENT SHOWING THE COMPOSITION OF THE SINKING FUND - SECURITIES

AND THE TOTAL OF THE FUND

DEBITS					CREDITS							BALANCE		TOTAL
Date	Description	Cost of Bonds	Interest Purchased	Total Debits	Date	Particulars of Sales	Proceeds of Sales	Receipt at Maturity	Refund of Int. Purchased	Loss of Prem. on Sales or at Mat.	Total Credits	Date	Amount	Sink'g Fund Cash and Sink'g Fund Securities
1922 Jan. 1		$	$	$			$	$	$	$	$	1922 Jan. 1	$	$ 25,000.00
" July 1												" July 1		50,000.00
1923 Jan. 1	10X at 105.13	10,513.00		10,513.00								1923 Jan. 1	10,513.00	75,000.00
" July 1												" July 1	10,513.00	100,000.00
1924 Jan. 1												1924 Jan. 1	10,513.00	125,000.00
" July 1	25V " 105.49	28,372.50		28,372.50								" July 1	36,885.50	150,000.00
1925 Jan. 1												1925 Jan. 1	36,885.50	175,000.00
" July 1												" July 1	36,885.50	200,000.00
1926 Jan. 1												1926 Jan. 1	36,885.50	225,000.00
" July 1												" July 1	36,885.50	250,000.00
" Sep. 1	15E " 101.43	15,214.50	150.00	15,364.50								" Sep. 1	52,250.00	250,000.00
1927 Jan. 1					1927 Jan. 1	Refund of Int.			150.00		150.00	1927 Jan. 1	52,100.00	275,000.00
" July 1												" July 1	52,100.00	300,000.00
" Sep. 1					" Sep. 1	10X at 101.29	10,129.00			384.00	10,513.00	" Sep. 1	41,587.00	300,000.00
1928 Jan. 1					1928 Jan. 1	15E " par		15,000.00		214.50	15,214.50	1928 Jan. 1	26,372.50	325,000.00
" July 1												" July 1	26,372.50	350,000.00
1929 Jan. 1												1929 Jan. 1	26,372.50	375,000.00
" July 1												" July 1	26,372.50	400,000.00
1930 Jan. 1					1930 Jan. 1	25V " "		25,000.00		1,372.50	26,372.50	1930 Jan. 1		425,000.00
" July 1												" July 1		450,000.00
1931 Jan. 1												1931 Jan. 1		475,000.00
" July 1												" July 1		500,000.00
		$52,100.00	$150.00	$52,250.00			$10,129.00	$40,000.00	$150.00	$1,971.00	$52,250.00			

Hypothesis No. 3

STATEMENT SHOWING THE COMPOSITION OF THE SINKING FUND

(CASH ONLY)

Date		Semiannual Payment to Sinking Fund	Semiannual Accretion of Interest to Sinking Fund	Actual Semiannual Cost or Payment plus Int. Accumulations	Total at end of each period
1922	Jan. 1	$ --- --	$ --- --	$ --- --	$ --- --
"	July 1	21,890.88	--- --	21,890.88	21,890.88
1923	Jan. 1	21,890.88	437.82	22,328.70	44,219.58
"	July 1	21,890.88	884.39	22,775.27	66,994.85
1924	Jan. 1	21,890.88	1,339.90	23,230.78	90,225.63
"	July 1	21,890.88	1,804.51	23,695.39	113,921.02
1925	Jan. 1	21,890.88	2,278.42	24,169.30	138,090.32
"	July 1	21,890.88	2,761.81	24,652.69	162,743.01
1926	Jan. 1	21,890.88	3,254.85	25,145.73	187,888.74
"	July 1	21,890.88	3,757.77	25,648.65	213,537.39
1927	Jan. 1	21,890.88	4,270.75	26,161.63	239,699.02
"	July 1	21,890.88	4,793.99	26,684.87	266,383.89
1928	Jan. 1	21,890.88	5,327.69	27,218.57	293,602.46
"	July 1	21,890.88	5,872.05	27,762.93	321,365.39
1929	Jan. 1	21,890.88	6,427.31	28,318.19	349,683.58
"	July 1	21,890.88	6,993.68	28,884.56	378,568.14
1930	Jan. 1	21,890.88	7,571.37	29,462.25	408,030.39
"	July 1	21,890.88	8,160.62	30,051.50	438,081.89
1931	Jan. 1	21,890.88	8,761.65	30,652.53	468,734.42
"	July 1	21,890.88	9,374.70	31,265.58	500,000.00
		$415,926.72	$84,073.28	$500,000.00	

P R O B L E M N O. 17

AMORTIZATION OF PREMIUM ON BONDS AND THE ACCUMULATION OF DISCOUNTS ON BONDS

PROBLEM NO. 17

AMORTIZATION OF PREMIUM ON BONDS AND THE ACCUMULATION OF DISCOUNTS ON BONDS

Text of the Problem

1. The minute books of a life insurance company show that, at a meeting held on December 15, 1919, the company's treasurer was authorized to purchase 5,000 A.B.R. 6% bonds, maturing July 1930, interest payable January 1 and July 1, whenever they can be acquired at such a rate as to yield 5%.

The company's financial records show that the bonds were acquired on January 1, 1920.

What should their cost have been?

Build up the bond investment account, and the interest on investment account, for the period covered by the life of the bonds, in order to show the process of amortization of the premiums to par.

2. Assume that the company's requirements had been the acquisition of 5,000 5% bonds (same maturity and interest date) at such a rate as would yield 6%.

Supply the same line of information as required in the foregoing.

Discussion of Problem No. 17

The question of the true income from investments will forever remain one of great interest to the investor, for it can readily be imagined that, under certain conditions, a man who spends as income precisely what he nominally receives as such may be expending, in fact, both income and capital, the latter partially or in full.

Let us assume that an investor has acquired 100 shares of the capital stock of a company whose assets are of the wasting type; that the company issuing the stock makes no provision out of earnings for the retirement of the stock at the time of the complete exhaustion of the land producing the wealth, and that dividends are regularly paid. Obviously, if the stockholder does not set aside a portion of his dividends, to be invested at every dividend period, on such a basis as will produce the cost value of the stock during the exploitation life of the wasting assets, he will have lost his capital, that is to say, he will have consumed it through a fallacious income.

Assume, further, that an investor, desirous of living on the income from his capital represented by $240,000 cash, purchases 7% bonds maturing in twenty years, with semiannual interest periods, and pays for them $236,120, at which price the bonds would yield 5½%. At every semiannual interest period, the interest coupons will produce $7,000, that is to say, 3.50% on par and 2.75% on cost. Our investor understands perfectly well

that there is a difference between nominal interest and yield; but not troubling himself with the exact meaning of the difference, he spends the $14,000 which he receives yearly from his investment; he will find, at the end of twenty years, that he has actually consumed over 15% of his capital through so-called income.

Lastly, assume that a testator leaves $250,000 cash in trust, with instructions to invest the estate's cash funds in bonds, to pay the income to X for life, the corpus of the estate to revert to Y at X's death. The trustees purchase 7% bonds, maturing in twenty years, with two semiannual interest periods, paying for them $236,120. We have here a very interest-situation: either X will receive $14,000 income annually, and the corpus of the estate will thereby be reduced by $36,120; or X will receive as income such a sum (smaller than $14,000) as will permit of the periodical repayment into the corpus, of the difference between the cost of the investments and the amount which will be received at maturity of the investment, in the event that this maturity will coincide with the death of the life-tenant.

Conversely, if the trustees had acquired 200 5% bonds of the same maturity and interest periods as the ones referred to above, and had paid for them $176,880, either X would receive an income of $14,000, and the remainder-man would find his inheritance increased by $23,120 at the expense of the life-tenant,

or X would receive as income such a sum (greater than $14,000) as would permit the periodical accumulation in the corpus of the estate, of the remainder-man's right to receive $23,120 additional at the maturity of the investment, provided such maturity coincided with the death of X.

You perceive that both the premiums suffered and the discounts received on bonds have, so far as the investor is concerned, a meaning generally connected with the terms loss and gain; that they have a closer connection with the term income, as distinguished from yield; and that it may happen that the terms mean, in one case not a loss, but an advance payment, and in the other case the right to record an asset to be received at a future period.

Before going deeper into the theory of discounts and premiums, it may be well to differentiate between investors.

A and B each have a fortune of $200,000; they have retired from business and could live comfortably, according to their standards, on the interest of their money if the latter were left in a bank at 4% interest annually. A, however, is not satisfied, and believes that by buying and selling bonds at the proper time, he can increase his income very materially, and even increase his capital through profits obtained on the rise or fall of the securities which he intends to manipulate. B has a steadier view of investments. While satisfied with his present condition, he is looking for the offering,on the market

of very long term bonds at such a price as would yield him a steady income of, say, 5½%. If he finds such an investment, he is firmly resolved to make no further change in the future, and to hold all bonds until their maturity, or until his demise.

We have established the line of demarcation between different types of investors. A is not an investor in the proper sense of the word: he is a speculator; B is the true investor. A has nothing to do with premiums or discounts on bonds, other than to realize that his profits or his losses on the manipulation of his so-called investments will represent the difference between the premium paid for and subsequently sold, or the discount received and subsequently sold. B must be very careful to amortize the excess cost of his securities over their par value, and to do so in such a manner that his securities will produce at every semiannual interest period, precisely the expected yield, neither more nor less.

Returning to the theory of premiums and discounts: to the speculator and to the occasional investor, premiums on bonds are losses to be reckoned with at some future time; to the true investors, premiums on bonds are not a loss; they represent a payment above par, made by him, presumably for the privilege of being permitted to make an investment, safe in every respect, and guaranteeing a rate of income which is all the more attractive because it will remain the same for a long period of quarters of years, half-years, or years. This advance payment is to be

returned to him in the form of an annuity, that is to say, a series of payments, coincident with the interest periods contained in the life of the bonds. Each member of the annuity (or each payment) is the difference between the nominal interest received on par (as per the face of the interest coupons) and the effective, or expected, interest on cost, that is to say, par plus premium. It is, in fact, a sum of money always the same, received at every interest period, increased from period to period in the amount of interest earned by the previous members considered as a fund deposited at the same rate as the investment is expected to yield. To be more specific, if we have paid $1,077.90 for a ten-year, semiannual 6% bond acquired to produce 5%, we will receive on the first interest period $30 (for six months) which will be the nominal interest on the par of the bonds; but as we expected the bonds to yield 2½% semi-annually on their cost which is greater than par, our true income, otherwise referred to as effective interest, can only be $26.95. Therefore, the amount of $30 received by us contains our true income, and besides, a refund of $3.06 to apply against our premium of $77.90.

If we divided the premium by the number of periods of bond life, we would see that this premium could be repaid to us in twenty instalments of $3.89½ each. But this would leave our income at a figure which would never be the true desired income. The amount which we actually receive is a smaller sum which, presumably invested at compound interest, at the effective rate

of the investment, as often as there are interest periods to the bonds, will produce the greater sum.

Conversely, if we had paid $844.10 for a ten-year bond, bearing interest at 3% annually, semi-interest coupons, we would have a yield of 5%. Therefore, as true investors, we would have the duty to consider that the discount of $155.90 is not a gain of the period of purchase, but a right maturing at the end of twenty periods of bond life, and recordable proportionately at the end of every interest period. Therefore, at each interest period our true income would be, first the nominal interest received, second the proportion of the recordable right to receive $155.90 additional at the end of twenty periods. Hence, this right to receive a sum greater than the sum paid is a series of rights, properly termed annuity, and subject to the same compound interest rules and rates as the premium annuity.

We have ascertained that, at every interest period, the difference between nominal and effective interest is an annuity instalment which, as the bonds progress towards maturity, is always greater than the previous instalment in the amount of compound interest earned during the period just expired; therefore, we have laid the foundation upon which to base our computations for ascertaining the probable cost of bonds to be acquired for the production of a desired yield; and we have the means of doing so without resorting to algebraic formulae; all we need, in fact, is the ability to theorize about an annuity member.

Assume, then, that information is required as to the price to be paid for 50 five-year 5% bonds, ten interest periods,

if it is desired to acquire them at such a rate as will produce 4%. The reasoning is perfectly simple, and the computation equally so. Let us see:

On the day of maturity of the bonds, there will be received, besides the par value of the bonds ($50,000), nominal interest at 2½% on par, that is to say, $1,250; while our expectation was not 2½% on par, but 2% on cost, which cost is unknown.

Theoretically, however, on the day of maturity of the bonds, both par and cost are equal, and they have been equalized by the receipt of the last instalment of an annuity also unknown. Therefore, if we oppose to the $1,250 received as nominal interest, the effective income of $1,000 (representing 2½% on cost equivalent to par), we obtain a difference of $250 which, when considered in the light of the theory of annuities, can be nothing more than what the annuity would be if any payment were due when cost and par are equal. As annuity members, when considered in the retrospect, contain the sum certain plus interest at the effective rate, it is evident that by removing the interest contained in our difference of $250, we will obtain the previous annuity instalment (that is to say, the last instalment) of our premium, paid on the above-mentioned bonds, which will positively reduce cost to par. In other words, we will obtain the amount which, added to par, would constitute the remainder of the cost of the investment at the beginning of the last period of their life.

Therefore, $250 divided by 102 (i.e., annuity 100%, interest 2%) will produce $245.09. If we keep on dividing each annuity member so found by 102, we will soon have the ten annuity payments which we are to receive during the life of the bonds. Their sum will be $2,245.64, which added to par, would give the cost of the securities as $52,245.64.

Now if we look at bond tables, we will find that a five-year bond, ten interest periods, producing nominally 5%, but with a desired yield of 4%, would cost $1,044.90. Therefore, according to the tables, the cost of 50 bonds would be $52,224.50. The difference of a few dollars is only a question of decimals, and has no importance whatever.

If we remember the difference between a premium and a discount annuity, which is that a premium annuity is an actual refund of a prepayment, while a discount annuity is the receipt of a recordable right to receive at a future period, we will obtain cost based on a yield greater than the nominal rate, as easily as we have been able to obtain cost based on a yield smaller than the nominal rate. The only difference will be that in the case of a discount we will deduct the sum of the annuities from par, instead of adding it to par.

What I have described to you in the foregoing is the theory of the amortization of premiums, and of the accumulation of discounts. This theory must be applied in every instance where the requirements of a concern in the matter of a positive yield on investments cannot be fulfilled by usual methods.

You and I understand perfectly well that the average concern, investing in securities occasionally, because it has surplus funds which for the present cannot be profitably invested in the business, has no use whatever for a theory which compels the scientific amortization of premiums or the accumulation of discounts through interest. If it retains its investments for a rather protracted period, it can, if it wants to, reduce the amount of the premium on bonds by periodical equal charges to revenue, or it may leave it alone to be reckoned with at the time the bonds are disposed of. But we also understand that when an insurance company has based the amount of the premiums which it must charge for its policies on the investment of its funds at a rate of, say, no less than 4¾%, no species of accounting which fails to show in the income account the exact expected yield on investments will fulfill the company's purpose.

In the solution of Problem No. 17 which is submitted in the following pages, no attempt has been made to carry the computations to further than two places beyond the decimal point. Therefore, comparison with bond tables will reveal a difference slightly over $100 which, in view of the conditions as stated and of the amount of money involved, is insignificant.

Solution of Problem No. 17

(a) Statement showing the cost of 5,000 6% bonds, with 21 semiannual interest periods, acquired to produce 5%, and the detail of the amortization of cost to par.

		PRINCIPAL			INCOME		
		Dr. Cost	Cr. Amortization and Maturity	Balance	Dr. Amortization	Cr. Nominal at 6%	Balance Effective at 5%
Jan. 1, 1920		$5,404,613.64	$ --- --	$ --- --	$ --- --	$ --- --	$ --- --
July 1,	"		14,884.66	5,389,728.98	14,884.66	150,000.00	135,115.34
Jan. 1, 1921			15,256.77	5,374,472.21	15,256.77	150,000.00	134,743.23
July 1,	"		15,638.19	5,358,834.02	15,638.19	150,000.00	134,361.81
Jan. 1, 1922			16,029.14	5,342,804.88	16,029.14	150,000.00	133,970.86
July 1,	"		16,429.87	5,326,375.01	16,429.87	150,000.00	133,570.13
Jan. 1, 1923			16,840.62	5,309,534.39	16,840.62	150,000.00	133,159.38
July 1,	"		17,261.63	5,292,272.76	17,261.63	150,000.00	132,738.37
Jan. 1, 1924			17,693.17	5,274,579.59	17,693.17	150,000.00	132,306.83
July 1,	"		18,135.50	5,256,444.09	18,135.50	150,000.00	131,864.50
Jan. 1, 1925			18,588.89	5,237,855.20	18,588.89	150,000.00	131,411.11
July 1,	"		19,053.62	5,218,801.58	19,053.62	150,000.00	130,946.38
Jan. 1, 1926			19,529.96	5,199,271.62	19,529.96	150,000.00	130,470.04
July 1,	"		20,018.21	5,179,253.41	20,018.21	150,000.00	129,981.79
Jan. 1, 1927			20,518.66	5,158,734.75	20,518.66	150,000.00	129,481.34
July 1,	"		21,031.63	5,137,703.12	21,031.63	150,000.00	128,968.37
Jan. 1, 1928			21,557.42	5,116,145.70	21,557.42	150,000.00	128,442.58
July 1,	"		22,096.36	5,094,049.34	22,096.36	150,000.00	127,903.64
Jan. 1, 1929			22,648.76	5,071,400.58	22,648.76	150,000.00	127,351.24
July 1,	"		23,214.98	5,048,185.60	23,214.98	150,000.00	126,785.02
Jan. 1, 1930			23,795.36	5,024,390.24	23,795.36	150,000.00	126,204.64
July 1,	"		24,390.24	5,000,000.00	24,390.24	150,000.00	125,609.76
" 1,	"	Principal.....	5,000,000.00				
		$5,404,613.64	$5,404,613.64		$404,613.64	$3,150,000.00	$2,745,386.36

(b) Statement showing the cost of 5,000 5% bonds, with 21 semiannual interest periods, acquired to produce 6%, and the detail of the accumulation of cost to par.

			PRINCIPAL			INCOME		
			Dr.	Cr.	Balance	Cr. Nominal 5% on Par	Cr. Accumulation to Par	Total
Jan. 1,	1920	Cost.....	$4,614,624.50*	$	$4,614,624.50	$ --- --	$ --- --	$ --- --
July 1,	"	Accumulation	13,438.73		4,628,063.23	125,000.00	13,438.73	138,438.73
Jan. 1,	1921	"	13,841.89		4,641,905.12	125,000.00	13,841.89	138,841.89
July 1,	"	"	14,257.14		4,656,162.26	125,000.00	14,257.14	139,257.14
Jan. 1,	1922	"	14,684.86		4,670,847.12	125,000.00	14,684.86	139,684.86
July 1,	"	"	15,125.40		4,685,972.52	125,000.00	15,125.40	140,125.40
Jan. 1,	1923	"	15,579.17		4,701,551.69	125,000.00	15,579.17	140,579.17
July 1,	"	"	16,046.54		4,717,598.23	125,000.00	16,046.54	141,046.54
Jan. 1,	1924	"	16,527.94		4,734,126.17	125,000.00	16,527.94	141,527.94
July 1,	"	"	17,023.78		4,751,149.95	125,000.00	17,023.78	142,023.78
Jan. 1,	1925	"	17,534.49		4,768,684.44	125,000.00	17,534.49	142,534.49
July 1,	"	"	18,060.53		4,786,744.97	125,000.00	18,060.53	143,060.53
Jan. 1,	1926	"	18,602.34		4,805,347.31	125,000.00	18,602.34	143,602.34
July 1,	"	"	19,160.41		4,824,507.72	125,000.00	19,160.41	144,160.41
Jan. 1,	1927	"	19,735.23		4,844,242.95	125,000.00	19,735.23	144,735.23
July 1,	"	"	20,327.28		4,864,570.23	125,000.00	20,327.28	145,327.28
Jan. 1,	1928	"	20,937.10		4,885,507.33	125,000.00	20,937.10	145,937.10
July 1,	"	"	21,565.22		4,907,072.55	125,000.00	21,565.22	146,565.22
Jan. 1,	1929	"	22,212.17		4,929,284.72	125,000.00	22,212.17	147,212.17
July 1,	"	"	22,878.54		4,952,163.26	125,000.00	22,878.54	147,878.54
Jan. 1,	1930	"	23,564.90		4,975,728.16	125,000.00	23,564.90	148,564.90
July 1,	"	"	24,271.84		5,000,000.00	125,000.00	24,271.84	149,271.84
" 1,	"	Principal.....		5,000,000.00				
			$5,000,000.00	$5,000,000.00		$2,625,000.00	$385,375.50	$3,010,375.50

*Bond tables, figured to two decimals, give the value of $92.29, which would make the cost $4,614,500.

P R O B L E M N O. 18

THE NECESSITY FOR EXPLAINING FINANCIAL STATEMENTS

PROBLEM NO. 18

THE NECESSITY FOR EXPLAINING FINANCIAL STATEMENTS

(Adapted from the New York C.P.A. Examination of June 1916.)

Text of the Problem

From the following figures of net sales, costs, and expenses, prepare a statement accounting for the shrinking in profits in 1910, showing in dollars and cents what portion of such shrinkage is due to decreased sales, and what portion is occasioned by the several variations in cost and expense items.

	1909	1910
Materials	$265,335.00	$230,500.00
Direct Labor	108,228.75	78,500.00
Indirect Labor	8,379.00	6,725.00
Factory Expenses	26,999.00	27,500.00
Trading Expenses	20,947.50	23,500.00
Office Expenses	11,637.50	10,500.00
Net Sales	465,500.00	390,750.00

Discussion of Problem No. 18

If the mind of the client were an open book to us, accountants, we might frequently read the following:

You have submitted to me a balance sheet of my business at such a date, a statement of income loaded with percentages of expenses to sales, and a report consisting of twenty pages of comments which give me the impression that you are possessed with the idea of proving to me that you have done your work thoroughly and faithfully. I like your statements very much; they look very nice, and they give me a certain sense of security. But, somehow or other, I feel that the photograph of my wisdom taken before and after reading your statements, would present no material points of difference. Does the trouble lie with you, or with me?

The latter question has been answered by the client long ago; the trouble is with statements which diffuse information and deny right of entry to concentration.

The balance sheet exhibits the financial status at the end of a period; the statement of income exhibits the causes which have brought about the change in financial status as between two periods. If two comparative statements are presented, one for the previous, and one for the present period, the increase or decrease of every item is carefully noted and exhibited in both statements. In the statement of income, the business man learns there is an increase of .0012% in the ratio of salaries to sales as between two periods, while there is a decrease of

.00001% in the ratio of stationery consumed to sales. He also learns that the cost of the goods sold in the present period is 1.234% more of the sales than it was last year, and that therefore there is a net decrease of X% of gross profit, and so forth down the line. But, precisely what this means, he is never told.

Still, it is quite evident that, if the profits of the year 1918 have been high enough to return 18% on the investment, while the profits of 1919 have reduced that return to 12%, the only way of stating properly the causes which have contributed to the decrease of profits is to consider the year 1918 as the ideal year, and to show in what particular way the year 1919 has failed to come up to the ideal.

If, then, we take the elements of income, cost, and expense of the year 1918, and exhibit them in statement form, computing carefully the ratio of each group component to the total of the group, we shall have set up, as a first proposition, the ideal elements and percentages which should have been maintained in 1919, to secure an equally satisfactory return on the investment. Opposite this, we should exhibit what the components of 1919 would have been if the ideal percentages had been maintained, and, in a third comparative column, what they actually were. Having noted the fluctuations between the actual and the ideal, we will now be in a position to state clearly the particular causes of the lack of success of the unsatisfactory year.

You see that this problem, insignificant as it may appear to be on the surface, has, like all problems, a well-defined

theory. When this theory has been ferreted out, the problem is solved, since there remains only the question of proper presentation.

The solution of the problem does not show to what causes is due the increase of material consumed in 1910, any more than it explains why there has been a considerable reduction in the standard amount of labor expended on the goods. Still, it points to the necessity of finding reasons therefor. The facts are so odd, that the explanation is almost obvious, in so far at least as the goods are concerned. Either there has been a strike, which has compelled the temporary cessation of operations, and the resultant wastage of material due to the suddenness of the stoppage or to the malice of the strikers; or there has been a general depression in the market in which the goods are sold.

The strike might very properly bring about an increase of overhead cost, through the very necessity of maintaining the plant, keeping up the fires, protecting the capital, or attempting partial operations by means of the employment of unskilled or less skilled labor. A depression in the trade might also bring it about, in that the reduction of the operative force was not coincident with the effect of the depression upon the sales. Either the strike or the trade depression might properly have caused an increase of trading expenses, since, for instance, the selling force might have been maintained at its full strength merely for educational work among the buyers demoralized by the strike, or for pioneer work in new fields not previously invaded by the concern.

I am not attempting to romance around the data of the problem; I am merely attempting to show you how, through the gathering of figures which, by themselves, have no quality other than to assert a fact, knowledge may be gained of conditions which, however disastrous, might otherwise have remained unknown to the accountant. The value of an accountant's work always depends, not so much upon the amount of such work, as upon the intelligence displayed. If his familiarity with theory places him in a position where he can compel figures to reveal what they are likely to hide unless properly coaxed, then, by all means, he ought to worship theory. If you object to the constant repetition of the word "theory," let me suggest another one less offensive, "imagination," born from a sense of power and of a clear conception of accounting science.

Solution of Problem No. 18

Statement showing what portion of the shrinkage of profits suffered in 1910 (when compared with 1909) is due to decreased sales, and to the fluctuations of cost and expense.

	Standard Year 1909 Cost, Expense, Profits, and Sales		Operations of 1910 on the basis of the maintenance of the ratios of the standard year 1909	Actual Operations Year 1910	Difference between Standard and Actual Year 1910	
	Amount	% of Each to Total			Increase	Decrease
COST AND EXPENSE:						
Materials.....	$265,335.00	57.00	$222,727.50	$230,500.00	$ 7,772.50	$
Direct Labor.....	108,228.75	23.25	90,849.38	78,500.00		12,349.38
Indirect Labor.....	8,379.00	1.80	7,033.50	6,725.00		308.50
Factory Expense.....	26,999.00	5.80	22,663.50	27,500.00	4,836.50	
Trading Expense.....	20,947.50	4.50	17,583.75	23,500.00	5,916.25	
Office Expense.....	11,637.50	2.50	9,768.75	10,500.00	731.25	
Total Expense....	$441,528.75	94.85	$370,626.38	$377,225.00	$19,256.50	$12,657.88
PROFITS.....	23,973.25	5.15	20,123.62	13,525.00	Net Increase	6,598.62
NET SALES.....	$465,500.00	100.	$390,750.00	$390,750.00		

Decrease of profit in 1910 - due to decreased sales..... $ 3,849.63
Decrease of profit in 1910 - due to increase of expenses..... 6,598.62

Total decrease of profits in 1910..... $10,448.25

P R O B L E M N O. 19

AGENCY ACCOUNTS - REAL ESTATE AGENTS

PROBLEM NO. 19

AGENCY ACCOUNTS - REAL ESTATE AGENTS

(Adapted from the New York C.P.A. Examination of January 1913.)

Text of the Problem

Karl Smith is a real estate broker, an agent who manages properties of other people in consideration of a stated commission, sells real estate on commission, and places insurance risks also on commission.

Having accidentally discovered irregularities in the rent roll, or tenants' book, Smith employs an accountant to examine the accounts. The books are found to be in bad condition, no attempt having been made to differentiate between the agent and his principals. In due course, the accountants establish the following trial balance of the general ledger as of September 30, 1912:

TRIAL BALANCE

Cash		$ 350.20	Karl Smith, Capital		$ 4,360.40
Petty Cash		100.00	Commissions		22,510.00
The Augusta Terrace	(a)	215.00	Phoenix Insurance Co.		470.00
" Victoria Court	(a)	805.00	London Insurance Co.		450.10
" St. Quentin Court	(a)	650.00	The Frederick Apartment	(f)	2,385.30
" Audubon Court	(a)	270.00	" Venetian Court	(f)	2,500.00
" Evening Despatch	(b)	75.00	" Franklin Castle	(f)	3,231.00
" Morning News	(b)	35.00	St. Martin Hall	(f)	2,850.70
" Union Wall Paper Co.	(b)	111.20	Tenants		1,550.00
" Janitors' Supplies Co.	(b)	45.25			
Insurance Account	(c)	920.10			
Karl Smith, Drawings	(d)	16,930.00			
Cash Shortage	(e)	380.00			
Salaries		12,140.00			
Office Expense		3,130.00			
Furniture and Equipment		4,150.75			
		$40,307.50			$40,307.50

Notation by the accountant on his trial balance:

(a) Remittances on account of collection of October rents, paid in advance upon signing lease, not as yet credited to the principals. Settlements to be made on the 29th of every month.

(b) Balances representing payments from March to June, 1912, for advertising, decorating, and supplies, for the account of managed properties. Paid bills cannot be found; no details available; itemized receipted bills asked for by letter; no answer at September 30, 1912.

(c) Premiums on fire insurance placed by agent for account of sundry clients not principals. Premiums will be paid to agent if risk is accepted and he will deduct commissions of from 5% to 15% from settlement with companies.

(d) Probably contains charges which might properly be capitalized under caption "Furniture and Fixtures" if positive information were available.

(e) Entries made in cash book by accountant for rent collections appearing in monthly statements to principals, but not appearing in cash book nor in duplicate of bank deposits obtained from banks.

(f) According to the terms of his employment, the agent must remit on the 5th day in every month.

The accountant reports that the cash shortage is due to practices made possible by the lack of correlation between the general books and the so-called "memorandum books" which, in this case, are not used as books of original entry. He further claims that the cashier's shortage is of far smaller importance than the actual conversion of trust funds of which the real estate agent has been guilty, unwittingly perhaps, through his failure to comply with the requirements of the law of agency.

To support his contention as to the latter point, the accountant produces a double balance sheet, i.e., the balance

sheet of Karl Smith as a business man, and the balance sheet of the Agency of Karl Smith.

REQUIRED:

(a) The balance sheets submitted by the accountant.

(b) The outline of a system of accounts which will safeguard the interests of the principals as well as show the true relation of the agency to them.

Discussion of Problem No. 19

The relations of an agent with his principals are of such a nature, they involve so much trust on the part of the principals, that nothing should be done, in the agent's record of his transactions, which can raise even the question of a doubt as to the accuracy and the good faith of his accounting.

Under the law, the agent is debarred from mixing his property with that of his principals. Therefore, if he is to comply with the law, his books should be distinct from the books of his agency; or if they are the same, they should record separately what is his own, and what belongs to others and is held by him for them. If, then, the agent keeps only one general ledger, his system of accounts should be so established as to make it possible for the agent to extract from the ledger a double trial balance.

1. The trial balance of the agent's personal assets, income charges, income credits, liabilities, and capital.

2. The trial balance of the assets, income charges, income credits, and liabilities of the principals, held by the agent, or recorded by him as payable out of their funds.

The agent's trial balance cannot show as his liabilities credit accounts of the principals, or the balances of their accounts current, for to him they are not liabilities. As he does not own the assets of the principals, he cannot carry them as his own; therefore, he cannot show a liability to anyone for that which he merely holds in trust. When, however, he has violated his trust, he becomes liable.

The ideal trial balance of the general ledger of Karl Smith, as an illustration, should be in two sections. It might read, if all had gone well:

SECTION I - PERSONAL

Personal Investments - K. S.	$ 5,000.00	Commissions on Management - K. S.	$ 2,740.00
Cash and Petty Cash - K. S.	3,750.00	Commissions on Insurance - K. S.	384.00
Commissions Receivable, Insurance - K. S.	60.00	Commissions on Sales - K. S.	4,900.00
Commissions Receivable, Sales - K. S.	720.00	Interest on Bank Balance - K. S.	10.50
Salaries, Office - K. S.	1,380.00	Sundry Accounts Payable - K. S.	1,375.50
Expenses, Office - K. S.	900.00		
Drawing Account - K. S.	3,600.00	Capital - K. S.	6,000.00
	$15,410.00		$15,410.00

SECTION II - AGENCY

Cash - Agency	$42,600.00	Repairs to Properties Managed, Unpaid	$ 1,970.09
Rents Receivable - Agency	5,200.00	Decoration of Properties Managed, Unpaid.	3,340.20
Leases Defaulted - Agency	900.00	Rentals of Properties Managed	65,000.00
Repairs to Properties - Agency	4,300.00	Interest on Bank Balances	149.71
Redecoration of Properties - Agency	9,600.00		
Salaries and Wages - Agency	5,120.00		
Commissions on Management - Agency	2,740.00		
	$70,460.00		$70,460.00

To carry out the scheme of accounts as outlined above, would require no more than the ordinary set of books; but it happens that the law of agency also requires that the agent shall not mix the property of his principals with that of third parties. Therefore, to avoid

creating a set of accounts with each principal, advantage may be taken of the elasticity of books of original entry.

A cash book providing for the recording of classes of receipts and disbursements, and the distribution of each item to five, ten, fifteen, or more properties managed, or if preferred, to as many principals, is not a difficult book to establish. Whether in one section or two sections (one for receipts and one for disbursements), this book, being provided with the initial and the closing balances, would reproduce faithfully the status of the cash account of each principal.

A voucher register similarly arranged would establish adequate differentiation between the disbursements made for the different principals.

A rent book provided with separate folios for each property, and with debit and credit columns for each month of the year, would complete simple and yet adequate series of books, setting forth very properly and accurately the interests of the different parties involved in the agency.

From these records of original entry, postings would be made to controlling accounts in the general ledger, and monthly statements of the accounts current abstracted, of which this is the substance:

Account Current of A

Property_____ No.___ _____Street, New York
for October - 1920

(1) To Your Credit:

(a) Rentals:

Receivable from prior months (in detail).....		$ 2,000.00
Receivable for this month (in detail)		20,000.00
Total Receivable.....		$22,000.00
Deduct: Defaulted Leases...	$ 750.00	
Rents Uncollected (in detail).....	1,500.00	
Total Deduction.....		2,250.00
Total Rentals Collected.....		$19,750.00
(b) Interest on Bank Balances.....		10.11
Total to Your Credit.....		$19,760.11

(2) To Your Debit:

(a) Salaries and Wages (as per vouchers attached).....		$ 1,050.00
(b) Repairs to Building (as per vouchers attached).....		950.00
(c) Redecorating (as per vouchers attached)		3,629.00
(d) Taxes.....		450.00
(e) Commissions on Management.....		395.00
Total Disbursements.....		6,474.00
(3) Balance to Your Credit (check herewith).....		$13,286.11

The great advantage to be derived from the application of the law of agency to the accounts of agents, is that when a sharp distinction is made between what the agent owns and what he holds for others, he cannot be tempted to use other people's property for his own purposes or needs. It is quite true that a man who wishes to go wrong is

not going to be stopped by a ledger account. But it is also true that an account practically labeled "this is not your property" may debar a scrupulous man from saying: "Well, I have plenty of cash on hand; some is mine and some is not; but how much is not mine, I cannot tell without a lot of trouble. As I need $1,000, I will take it, and if it proves that it was not wholly mine, I will make it up in some way, through my commissions or otherwise."

Coming down to the problem proper, it may be necessary to explain the following:

The cashier was enabled to steal through the lack of correlation between the books of original entry (which were treated, not as posting media, but as memoranda) and the general ledger. Therefore, when the cashier received money from a tenant, he could, if he chose, fail to record it in the cash book and keep it for himself, provided he was careful to record it in the memorandum rent book. He would, of course, be very careful to do this; otherwise, when rendering the account current from that book, he would report falsely to the principal, and the latter could readily, if he wanted to, communicate with the tenant and ascertain why the rent had not been paid. Thereupon would hang the possibility of discovery of the dishonest cashier. Of course, the same moral effect would have been obtained had the agent attempted to reconcile the accounts current with the general ledger. But this he could not do owing to the fact that everything was mixed, and that no account represented anything specific.

The accounts bracketed (a) on the debit side, and totaling $1,940, represent apparently the payment in September 1912 of October rents collected in advance, in September, remitted to the principals together with the balances of the September accounts current which were due on the 29th. If these advance payments brought about a debit balance in the accounts current, it must be because the entry expressing the advance collections to secure new leases was:

Debit Cash.....	$1,940.00	
Credit Tenants....		$1,940.00

This, ordinarily, would have called for another entry:

Debit Tenants.....	$1,940.00	
Credit Principals.		$1,940.00

and, subsequently, when the accounts current were paid:

Debit Principals.....	$1,940.00	
Credit Cash.....		$1,940.00

This would have closed the accounts with principals, owners of the properties at issue, without any balances. If the debit balances exist, it is because the accountant did not wish to make, in September, an entry debiting tenants for rents maturing only in October.

It results from the foregoing that the accounts current bracketed as (a) on the debit side, are only offsets of the credit account "Tenants" which, ordinarily, should show a debit balance. At all events, the credit balance "Tenants" should be of the same amount as the debit accounts Since this is not the case, then the account "Tenants" is a net figure, containing, on the debit side, $390 of rents applicable to accounts current showing

a credit balance unpaid, and, on the credit side, $1,940 of rents collected in advance, applicable to accounts current with a debit balance.

The rest of the problem requires no particular explanation.

Solution of Problem No. 19

The general balance sheet of Karl Smith in his capacity as a business man cannot be made; he has converted to his own use $9,860.35 of the funds belonging to his principals, and to cover this amount he only has, in his business estate, furniture and equipment costing $4,150.75, the salable value of which is problematic. The fact that he violated the law of agency appears to give his principals the right to seize what he has, repay themselves out of the proceeds what he owes them, and hold a claim against him for the balance.

The general balance sheet of Karl Smith, Real Estate Agent, if it were to show his true relation to his principals, would be as follows:

Assets of Principals held by Agent against their Accounts Current:		
Cash.....	$ 350.20	
Petty Cash.....	100.00	
Total.....	$ 450.20	
Unliquidated Items:		
Disbursements for account of principals, out of their funds, not distributed for lack of information:		
Advertising.....	$ 110.00	
Redecorating, Janitor Supplies, etc.	156.45	
	$ 266.45	
Total Assets of Principals held by Agent against their Accounts Current.....	$ 716.65	
Agent's Deficiency of Funds for settlement of which his only asset is Furniture, Fixtures, and Office Equipment costing $4,150.75.....	9,860.35	
	$10,577.00	
Accounts Current with Principals:		
The Frederick Apt., due Oct. 1912.....		$ 2,385.30
The Venetian Court due Oct. 1912.....		2,500.00
The Franklin Castle, due Oct. 1912.....		3,231.00
St. Martin Hall, due Oct. 1912.....		2,850.70
Total.....		$10,967.00
Less Rents Uncollected, credited to account current.....		390.00
		$10,577.00

KARL SMITH - PROFIT AND LOSS ACCOUNT

Salaries	$12,140.00	Commissions	$22,510.00
Office Expense	3,130.00		
Cash Shortage	380.00		
Net Profit - Drawing Account	6,860.00		
	$22,510.00		$22,510.00

KARL SMITH - CAPITAL

Drawings:		Initial Balance		$ 4,360.40
		Net Profit from Operations		6,860.00
Up to amount of Invested Capital and Profits	$11,220.40			$11,220.40
In excess of Invested Capital and Profits	5,709.60	Debit Balance, representing Liability of Karl Smith to Principals	$9,860.35	
		Less the cost of the only asset possessed by him, Furniture and Fixtures	4,150.75	5,709.60
	$16,930.00			$16,930.00
September 30, 1912 Impairment	$ 5,709.60			

The outline of the system of accounts required by the problem has been given in the discussion. The following forms are mere sketches of what the books could be:

CASH RECEIPTS

KARL SMITH, REAL ESTATE AGENT

DATE	NAME	PARTICULARS	AMOUNT	DISTRIBUTION												
				K. SMITH - PERSONAL			AGENCY									
				ACCOUNT	FOLIO	AMOUNT	A	B	C	D	E	F	G	H	I	J	K

Note - If items of Distribution are very numerous, one or several short insert sheets can be used as follows

AGENCY										
L	M	N	O	P	Q	R	S	T	U	V

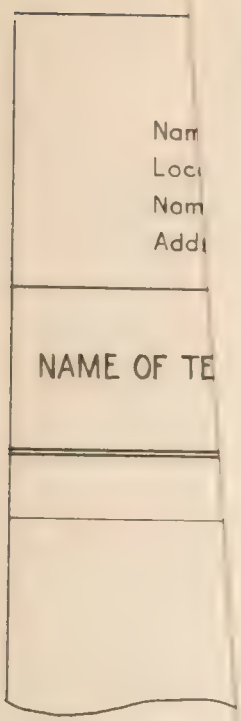
Note - Cash Disbursement books arranged on similar lines.

VOUCHER REGISTER

KARL SMITH, REAL ESTATE AGENT

DATE OF RECEIPT	NAME	PARTICULARS	KARL SMITH - PERSONAL					AGENCY										
			VOUCHER NO	ACCOUNT	FOLIO	AMOUNT	DATE OF PAYMENT	VOUCHER NO	AMOUNT	DATE OF PAYMENT	DISTRIBUTION							
											A	B	C	D	E	F	G	H	I

Note - Short insert sheet can be used for agency distribution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NAME OF TE

KARL SMITH, REAL ESTATE AGENT

RENT BOOK OF PROPERTIES MANAGED

Name of Premises _____
Location of Premises _____
Name of Owner _____
Address of Owner _____

Particulars of Account Current

Due Date _____
Detail Wanted ___
Commission on Management _____
Commission on Collections _____

NAME OF TENANT	PREMISES OCCUPIED	LEASE						DEBITS					CREDITS						BALANCE DUE END OF MONTH
		BEGINS	EXPIRES	RENTAL		OTHER CHARGES		LAST MONTH	THIS MONTH			TOTAL DEBITS	DATE	LAST MONTH	THIS MONTH			TOTAL CREDITS	
				PARTICULARS	AMOUNT	DETAIL	AMOUNT	BALANCE UNPAID	RENT	OTHER CHARGES PARTICULARS	OTHER CHARGES AMOUNT			BALANCE	RENT	OTHER CHARGES PARTICULARS	OTHER CHARGES AMOUNT		

Specifications

1 Recto and verso of pages to be printed in exactly same fashion, so that when the book is open, the blank columns of the insert sheets will be properly headed

2 Six inserts, ruled the same on both sides as follows

3. Three lateral lines for each tenant, the lateral line for the name being the only one to run through the page

4 Extra space on left of insert sheet is for names of month Six inserts cover one year

P R O B L E M N O. 20

THE ACCOUNTS OF FACTORS AND AGENTS

PROBLEM NO. 20

THE ACCOUNTS OF FACTORS AND AGENTS

(Adapted from the New York C.P.A. Examination of June 1914.)

Text of the Problem

A and B, commission merchants, suspect their cashier of embezzlement. From the following data, determine whether or not their suspicions are well founded, and produce such financial statements as will exhibit the result and the proof of the embezzlement, if any:

Facts appearing in the general ledger:

Sales	$	$42,000.00
Cash Receipts, Customers	42,000.00	
Freight	4,240.00	2,480.00
Duty	2,120.00	1,240.00
Dock Charges	212.00	124.00
Custom House Charges	90.00	45.00
Interest (Account Sales at 6%)		248.00
Commissions (5% on Sales)		1,240.00
Office Expense	2,000.00	
Documentary Advances	20,000.00	12,000.00
Acceptances against Shipments	12,000.00	20,000.00

Debit balances appearing in the principal's memorandum book of consignments:

Duty $875; freight $1,560; dock charges $70; custom house charges $40.

Discussion of Problem No. 20

The theory of this problem is the theory of the accounts of agents; therefore, it is dependent upon a satisfactory knowledge of the law regulating factors and agents.

Agreements are made between principals and agents, which, if given in full in the text of an accounting problem, would rob the problem of its value as a test of the candidate's knowledge of the law, and of his ability to reconstruct a theory from the very condition of the facts presented.

Let us try to find out the precise terms of the agreement between the principals and the agent, in the problem at issue:

Agreement: The agent (or factor) will sell the goods of the principal at the market value of such products on the day of sale. On the (say) last day of every third month, he will render an account sales, accounting for such sales as he has collected, and applying against such collected sales such expenses paid by him out of his funds or the funds of the principals, and such commissions at the rate of 5% of the sale price as apply to them. From time to time, upon telegraphic advice, the principals will draw on the agent in such amounts as he can conveniently accept; but as the payment of such acceptances may be made before the due date of the agent's account sales, he, the agent, will be permitted to charge the principals with interest, at 6%, on all moneys so paid, from the date of the payment to their due date. The office expenses of the agent are

his own personal expenses, and are not chargeable to the principals. Any loss of the principal's property due to the fault of the agent is chargeable to him, and recoverable from him.

You are going to ask me: How do you arrive at the terms of the agreement? The answer is plain enough: if only a part of certain accounts has been charged to the principals, it was because, under the agreement, it was the only part chargeable; if certain items have not been charged, it is because, under the agreement, they could not be; if all the sales have not been reported, it is because, at the time part of them only was reported, it was the only part of the sales reportable.

You may also ask: How do you know what the reported sales were? Well, if the agent when rendering an account sales charged the principals with $1,240 for commissions, this sum was 5% of the amount of sales reported; therefore the sales must have been $24,800.

Having become familiar with the agreement between the principal and the agent, a mere glance at the facts stated by the problem will bring forth the thought that, since accounts representing expenses paid by the agent for his principals have been partially credited in the ledger, it must mean that that portion of them has been debited to the principals in an account sales which has been previously rendered. Therefore, the first thing that we must do is to reconstitute the account sales as rendered.

PRO FORMA ACCOUNT SALES

RENDERED BY AGENT TO PRINCIPAL

Sold for Your Account, goods, sales value.....		$42,000.00
Deduct, not reportable at this time, as per our agreement.....		17,200.00
To Your Credit, reportable sales.....		$24,800.00
Charges Against You:		
(1) Expenses applicable to this Account Sales:		
Freight.....	$ 2,480.00	
Duty.....	1,240.00	
Dock Charges.....	124.00	
Custom House Charges.....	45.00	
Total Expenses.....	$ 3,889.00	
(2) Interest at 6% on accepted drafts paid in advance of the date of this account sales.....	$ 248.00	
(3) Commissions, 5% of sales reported..	$ 1,240.00	
Total Charges Against You.....		5,377.00
Balance to Your Credit.....		$19,423.00
Your drafts, paid by me.....	$12,000.00	
Check No.____ herewith.....	7,423.00	
	$19,423.00	

E. & O. E.

Signed _____
Agent

Now that we know the exact detail of the account sales rendered, we must ascertain what remains to be reported in the next account sales. The method of bookkeeping adopted by the agent contemplates, besides the usual books of accounts, a memorandum book in which are recorded all the facts pertaining to the

receipt and sale of goods and the payment of charges relating to the goods; naturally, this book must be so arranged as to place the bookkeeper in a position to establish the account sales quickly and accurately when it is due. This book might be arranged as follows:

DATE
OF
RECEIPT

A. V. JONES Consignor of Goods.

2400 BUNKER HILL STREET BOSTON, MASS

Particulars of Agreement.

Goods consigned at : Cost
Goods to be sold at : Market Value
Commissions ___ ___ ___ . 5% on sales price
Due date of account sales : 30th day of January and July
Reportable ___ ___ ___ : Sales collected to day of account sales.

DATE OF RECEIPT	DESCRIPTION & PARTICULARS OF SHIPMENTS	SPECIAL MARKS	QUANTITY	PRICE	VALUE	CHARGES AGAINST SHIPMENTS				SALES								APPLIED CHARGES					REMARKS
						FREIGHT	DUTY	OTHER CHARGES		DATE	NAMES AND ADDRESSES OF CUSTOMERS	DESCRIPTION AND PARTICULARS	SPECIAL MARKS	QUANTITY	PRICE	VALUE	DATE OF COLLECTION	ACCOUNT SALES DATE & NUMBER	FREIGHT	DUTY	OTHER CHARGES		
								DETAIL	AMOUNT												DETAIL	AMOUNT	

This memorandum book would be used, not only as the basis for the establishment of the account sales, but, as well, as a basis for journal entries expressive of results to appear in the general ledger.

It must be evident to you that the correlation between the consignment (or agency) memorandum book, and the general ledger should be absolute. This means, in fact, that, assuming that our agent had only one principal, the charges appearing in the general ledger for freight, duty, etc., and paid out of cash, should be absolutely identical with the charges appearing in the consignment book. This being the case, such credits as are given to the charges accounts in the memorandum book represent the partial application of the charge item to the account sales, and therefore, when the journal entry is made, it must be:

Debit Principals (or account current) or (account sales)

Credit Freight, Duty, etc.

Consequently, the balances of the sundry charges accounts represent the portion applicable to future account sales, and should be absolutely equal on the general ledger and on the memorandum book. If they are not, it simply means:

1. That a posting error has been committed, or
2. That charges are made in the general ledger, as paid out of cash, which are in excess of the amount recoverable from the principal.

As there is no fact given by the problem leading to the possibility of an error in posting, it must be assumed that the cashier, being also the bookkeeper (a dangerous proposition at

all times), realized that with the existing lack of proper control of his bookkeeping by the proprietor of the business, he could take advantage of loose conditions, and, provided his account sales were properly established, manipulate the agency funds as he saw fit.

Thus, when paying a freight bill of say, $30, he could raise the duplicate to $80, retain it as a cash voucher, record the payment of $80, and appropriate $50. But he would be very careful to record only $30 on the debit side of the memorandum book, and not to raise the original of the freight bill, which he would have to forward to the principal, attached to the account sales.

You see clearly how the thing was done, and how easily we have established our premises by merely using the theory of bookkeeping. It happens that the majority of the problems that accountants face, either at examinations or in actual practice, are solvable only through the theory of accounts

Having established the fact that a discrepancy exists between the general ledger and the memorandum book used for the establishment of account sales, we will now build up, from the known facts, what the next account sales to be rendered will be.

ACCOUNT SALES TO BE RENDERED

At a date unknown

AS RECONSTITUTED FROM EXISTING DOCUMENTS

To Your Credit:

Sold for your account, goods, sales value..... $17,200.00

Charges Against You:

(1) Expenses (as per vouchers):

Freight.....	$1,560.00	
Duty.....	875.00	
Dock Charges.....	70.00	
Custom House Charges.....	40.00	
Total Expenses.....	$2,545.00	
(2) Commissions, 5% of Sales.....	$ 860.00	
Total Charges Against You.....		3,405.00
Balance to Your Credit.....		$13,795.00

Against this credit balance of the account current of his principals, the agent holds, or should hold:

1. Cash
2. Accepted drafts not paid

Let us see, now, what the agent actually holds. We must, first of all, rebuild the cash account, using only the apparent facts:

CASH ACCOUNT

RECEIPTS:		DISBURSEMENTS:	
From Customers.....	$42,000.00	Charges to Principal:	
		Freight (actual)....	$ 4,040.00
		Duty (actual).....	2,115.00
		Dock Charges (actual)	194.00
		Custom House Charges (actual).....	85.00
			$ 6,434.00
		Cashier's Embezzlement:	
		Freight.....	200.00
		Duty.....	5.00
		Dock Charges.....	18.00
		Custom House Charges	5.00
		Total.....	$ 6,662.00
		Office Expense.....	2,000.00
		Remittance to Principal.....	7,423.00
		Drafts.....	12,000.00
			$28,085.00
		Balance.....	13,915.00
	$42,000.00		$42,000.00

Expressing the facts that we have ascertained in trial balance form, we would obtain:

Cash.....	$13,915.00	Sales to be Reported...	$17,200.00
Chargeable to Principals:		Acceptances Payable....	8,000.00
Freight.....	1,560.00	Commissions of Agent:	
Duty.....	875.00	Earned.....	1,240.00
Dock Charges.....	70.00	Accrued.....	860.00
Custom House Charges	40.00		
		Interest on Account	
Documentary Advances...	8,000.00	Sales - Agent.....	248.00
Cashier's Shortage.....	228.00		
Office Expense.....	2,000.00		
Commissions Accrued to Agent.....	860.00		
	$27,548.00		$27,548.00

If we were to close the nominal accounts affecting the agent in his private capacity, we would have:

PROFIT AND LOSS ACCOUNT

A and B

Expenditures:		Commissions, 5%	
Office Expense.....	$ 2,000.00	Earned.....$1,240.00	
		Accrued..... 860.00	
Loss through Cashier's Defalcation.....	228.00	Total.....	$ 2,100.00
	$ 2,228.00	Interest on Account Sales, 6%.....	248.00
Net Income.....	120.00		
Total.....	$ 2,348.00	Total Earnings.....	$ 2,348.00

and, at this point, we would have the following trial balance:

Cash.....	$13,915.00	Sales Collected, to be reported to Principals.....	$17,200.00
Chargeable to Principals:			
Freight.....	1,560.00	Acceptances Payable out of Principals' funds.	8,000.00
Duty.....	875.00		
Dock Charges.....	70.00		
Custom House Charges	40.00	Agent's Net Profits payable out of Principal's funds.....	120.00
Documentary Advances...	8,000.00		
Commissions accrued to Agent, receivable by him, chargeable to Principals.....	860.00		
	$25,320.00		$25,320.00

Step by step, we have analyzed, reconstructed, applied theory, and finally erected a structure which stands as the solution of our problem. We find that, if the agents were to draw a check to their own order, in the amount of $120 on funds that they have on hand, the remaining facts would all pertain to the agency, which is equivalent to saying that we would have, not a balance sheet in the proper sense of the word, but the exact components of an account sales.

Solution of Problem No. 20

PROOF OF EMBEZZLEMENT

As Obtained from the Books of Account

Detail of Charges	Appearing in Cash Disbursement Book	Charged to Principals in Consignment Book	Difference Admitted Not to be Recoverable	Charged to Principals in Account Sales rendered, as per General Ledger and Consignment Book	Balance appearing as Recoverable in Consignment Book	Balance appearing as Recoverable in General Ledger
Freight.....	$4,240.00	$4,040.00	$200.00	$2,480.00	$1,560.00	$1,760.00
Duty.....	2,120.00	2,115.00	5.00	1,240.00	875.00	880.00
Dock Charges.....	212.00	194.00	18.00	124.00	70.00	88.00
Custom House Charges..	90.00	85.00	5.00	45.00	40.00	45.00
	$6,662.00	$6,434.00	$228.00	$3,889.00	$2,545.00	$2,773.00
	6,434.00	--- --				
Difference.....	$ 228.00	$ --- --	$228.00			

STATEMENT SHOWING THE RELATION OF A & B, COMMISSION MERCHANTS

WITH THEIR PRINCIPALS (CONSIGNORS)

As exhibited by their Books, Records, and Accounts

Sold by A & B, for the account of their Principals.....		$17,200.00
Due by Principals to A & B, Commission Merchants, for their Net Earnings.....		120.00
Held by A & B, against the Credit Account of the Principals:		
Cash:		
For the Payment of Drafts drawn on A & B by the Principals, accepted by the Agents...	$ 8,000.00	
Due to A & B for their Net Earnings.....	120.00	
Available for remittance to Principals.....	5,795.00	
Total Cash.....	$13,915.00	
Expenses paid out of their funds, chargeable in next Account Sale:		
Freight.....	$1,560.00	
Duty.....	875.00	
Dock Charges.....	70.00	
Custom House Charges.....	40.00	
Total Expenses.....	2,545.00	
Commissions Accrued to A & B, included in the computation of their Net Earnings to be paid out of Principals' Cash.....	860.00	
TOTAL.....	$17,320.00	$17,320.00

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